AUG -9 1948

Textile Industries

AUGUST, 1948

formerly COTTON Textile Industries

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AUG 14 1948

LIFTER RODS and BUSHINGS

MODERNIZE your spinning frames for improved production with Precision products

CAM BALL BEARING UNITS

ball bearing JACK BEARINGS

NON-SLOUGHING CAMS

BALL BEARINGS for CYLINDERS

DRAFT GEARS

PRECISION GEAR and MACHINE COMPANY, INC.
THE SOUTH'S LARGEST MANUFACTURER OF GEARS AND CHAIN DRIVES

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For Softness As You Like It

AHCOVELS* bring good draping qualities and a smooth, flexible hand to your cotton, wool and synthetic fabrics. These improved substantive softeners impart softness as you like it.

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AHCOVELS are stable when subjected to heat.

AHCOVELS resist yellowing and rancidity.

AHCOVELS E, F & R do not affect light fastness or color.

AHCOVELS are economical, they cost no more.

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PROVIDENCE, R. I.

Plants at Dighton, Mass., Charlotte, N. C. and Cincinnati, Ohio

NEW YORK • BOSTON • PHILADELPHIA • CHARLOTTE • CINCINNATI

TEXTILE INDUSTRIES is published monthly at 116 E. Crawford St., Dalton, Ga., by W. R. C. Smith Publishing Company, Dalton and Atlanta, Ga., U. S. A.
Executive and Editorial Offices: Grant Bldg., Atlanta 3, Ga.
Subscription Rates, United States and Possessions, $2.00 for one year; Canada, South America, Central America, $2.00 per year; Foreign Countries, $5.00 per year.
Entered as second-class matter at the Post Office, Dalton, Ga., under the Act of March 3, 1879.

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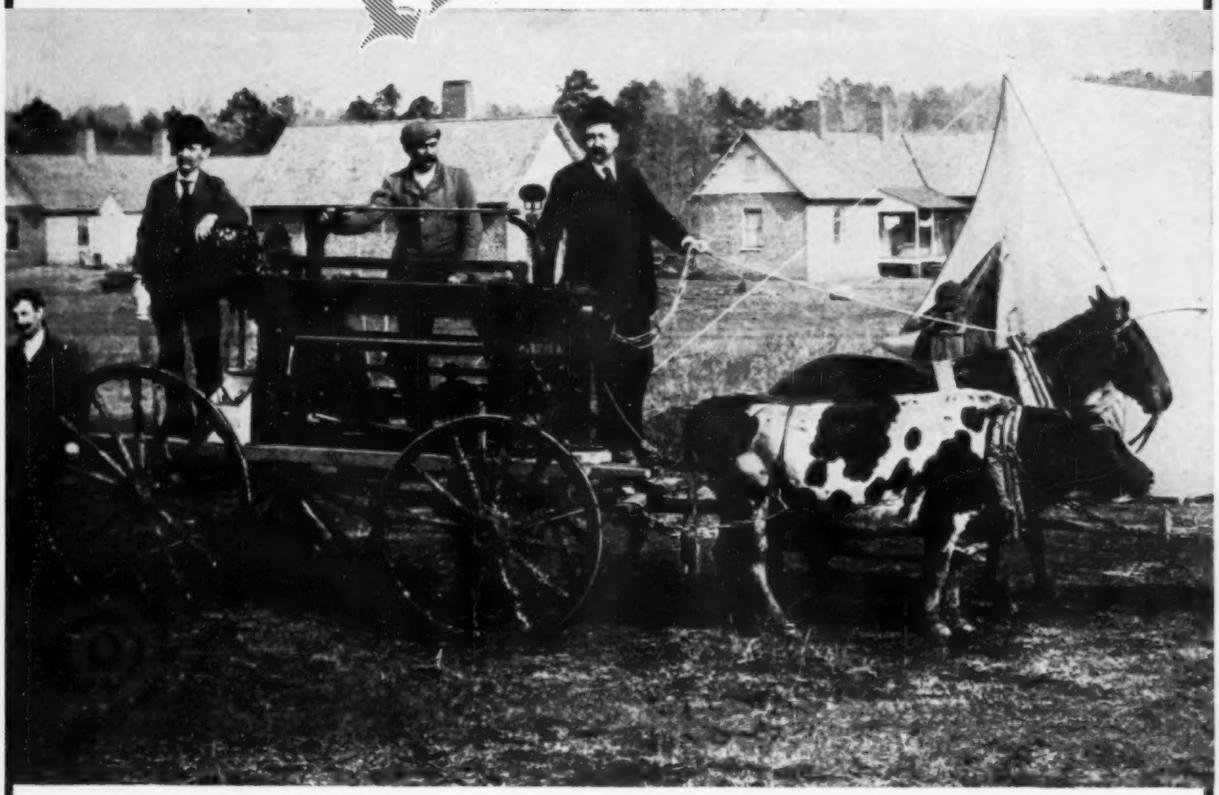
In 1896



When goods were transported by ox cart instead of by high speed motor van, one of the most progressive mills of the day received the new Draper Automatic Loom pictured above. They had become convinced of the practicability of this radically different Loom. The report that a Weaver could tend 16 instead of 4 appealed to them as a practical way of weaving more cloth at less cost.

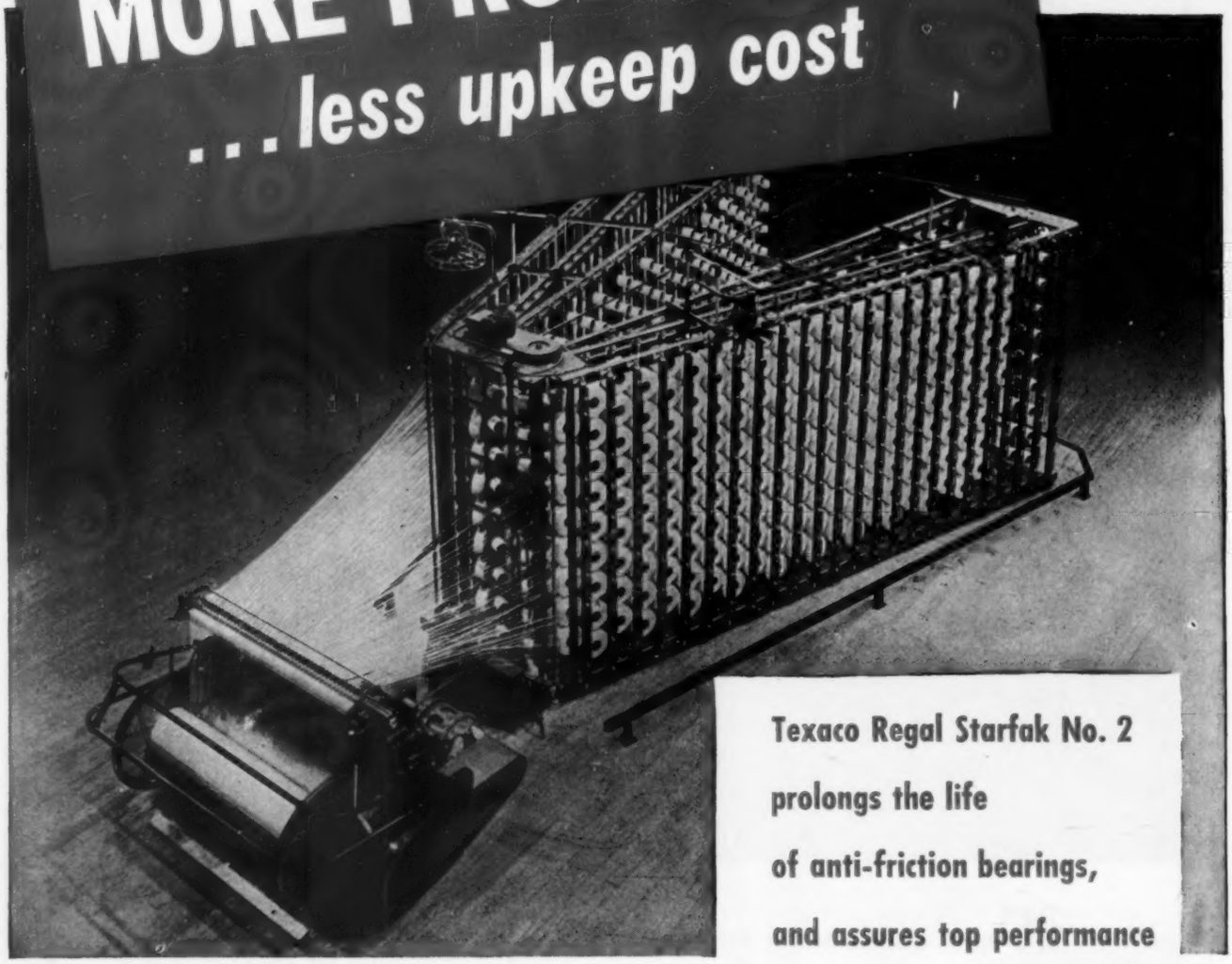
Today, with Weavers running 100 looms on many cotton weaves, and up to 50 on rayon weaves, the Draper Loom is still the most productive and the most economical.

Established 1816

Draper Corporation

Incorporated 1916

MORE PRODUCTION ...less upkeep cost



Texaco Regal Starfak No. 2 prolongs the life of anti-friction bearings, and assures top performance

GREASE-LUBRICATED ball and roller bearings in high speed spoolers, warpers, spinning frames, looms, motors and other machinery last longer, run better, and cost less for upkeep when lubricated with *Texaco Regal Starfak No. 2*. The smooth, uninterrupted operation thus assured, means greater production at lower cost.

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In addition, *Texaco Regal Starfak No. 2* assures less "drag" in starting and running, so power consumption is less . . . and it's a long-lasting lubricant that's easy to apply, so fewer applications are needed.

Enjoy these and other economies by using Texaco Products and Lubrication Engineering Service throughout your mill. Just call the nearest of the more than 2500 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Lubricants

FOR THE TEXTILE INDUSTRY

Tune in...Texaco Star Theatre every Wednesday night featuring Gordon MacRae and Evelyn Knight...ABC Network

Volume 112, Number 8

ABC

Textile Industries

COTTON

August, 1948

ABP

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Payment for contributed articles is made upon acceptance, before publication.

"Textile Industries" has the largest circulation among the mills of the United States of any textile publication.

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ANNUAL SUBSCRIPTION
U. S., CANADA, PAN-AMERICA—$2.00
FOREIGN—$5.00

Published Monthly at 115 E. Gordon, Dalton, Ga.

By W. R. C. SMITH PUB. CO.

Editorial and Executive Offices
Grant Bldg., Atlanta 3, Ga.

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it's all in the "KNOWHOW"

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The fisherman with the biggest catch has spent years learning which waters give the best "strikes"—what type of line, reel, and rod it takes—what bait to use—and how the weather counts.

Denman Pioneer Picker superiority, too, is based on years of cumulative knowledge. Constant progress in research laboratory, improved mechanical design, and inter-related efforts of Terrell field men and Denman engineers—all these have been a consistent policy through all the years Denman and Terrell have pioneered rubberized fabric pickers.

Supported by the fine cooperation of mills, Denman pioneering is continuous. Experiments in the laboratory and on-the-job testing are constantly in process for new developments that will KEEP Denman FIRST with the BEST . . . and continue to give you pickers that result in

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CHARLOTTE, N. C.

Columbia's plants and those of its affiliate, Southern Alkali Corporation, are favorably located and are integrated with well organized distribution facilities.

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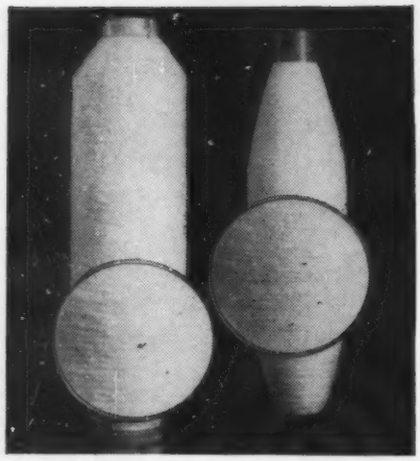
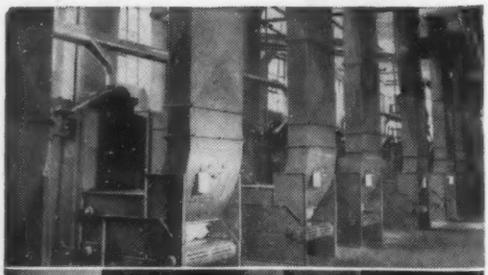
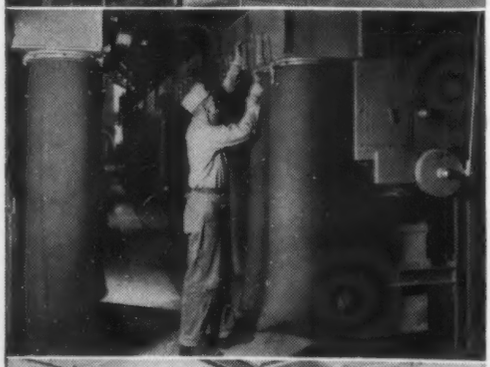
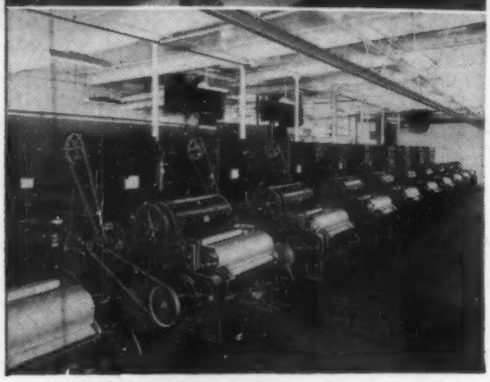


Impurities and defects in the yarn or thread inevitably follow insufficient cleaning and poor opening. These defects can be reduced to the minimum by using "1948 SACO-LOWELLized" Opening and Picking Processes.

SACO-LOWELL
..always FIRST in Opening, Cleaning, Picking







Modern opening and picking is built around six major developments *pioneered by SACO-LOWELL:*

1. Cleaning and Blending Feeders
2. Dust and Waste Extractors
3. Reserve Box with Control Distribution
4. One-Process Picking with Blending Reserve
5. Automatic Air Filters for Picker Room
6. Synchronized Electric Control for Opening and Picking

All originated by SACO-LOWELL, these notable engineering achievements have saved vast sums through better cleaning, more uniform blending, reduced fibre damage, and regularity in weight and lap structure.

Removal of Impurities such as peppery leaf, dust, seed fragments, motes and neps can best be accomplished in the opening and picking room... especially in a conditioned atmosphere made possible by the use of air recirculated through our automatic filters.

Today, with the ever-increasing use of cotton picked mechanically, the problem of *cleaning in the early stages* takes on added significance. Mills that have not had the opportunity to SACO-LOWELLize in recent years will find discussion with our engineers interesting and helpful.

(*Top*) Chutes from blending room to blending feeders
(*Center*) An impressive line of No. 6 Air Filters
(*Bottom*) Pickers in a large Southern mill

SACO-LOWELL

60 BATTERYMARCH STREET, BOSTON 10, MASS.

Shops at BIDDEFORD, MAINE

SALES OFFICES: CHARLOTTE • GREENVILLE • ATLANTA

You Fit Your Bat to Your Game

BUY V-BELTS THE SAME WAY

YOU'D never play badminton with a baseball bat. Or cricket with a tennis racket. Using *one* V-belt type to meet all the variations of V-drive operating conditions is out of place, too.

So Goodyear makes industry's most complete line of V-belts. Choose the proved construction that meets your drive requirements—built with oil-resistant, heat-resistant or non-static rubber, if needed.

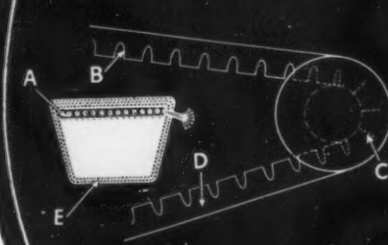
To end stretch and maintenance problems, there's Goodyear's exclusive COMPASS-V-STEEL belt, with wiry, super-strength steel-cable load carriers. To meet sudden overloads and shock stresses, Goodyear has belts sinewed with multiple, high-tensile, resilient cords. Still other Goodyear belts with single-plane, endless-cord load carriers deliver high flex-life on fast, small-pulley, short-center drives. And there's Goodyear's open-end V-belting with special body of high fastener strength fabric.

Drive-Fitted By the G.T.M.

To insure belting with the V-belt that's *right* for your particular problem, consult the G.T.M.—Goodyear Technical Man. He'll recommend the proper Goodyear V-belt to give you long, trouble-free service at the lowest cost in the long run. Write him c/o Goodyear, V-Belt Sales Dept., Akron 16, Ohio.

GOODYEAR INDUSTRIAL RUBBER PRODUCTS

GTM-Specified COMPASS-V-STEEL BELT



A Load-carrying section of endless high-tensile steel cable.

B Vents open between pulleys, dissipating heat.

C Vents compress rounding pulleys, giving continuous gripping surface.

D Highest quality rubber underbody.

E Sturdy, bias-laid fabric cover resists wear.

1898 GOODYEAR 50 YEARS 1948

FOR BELTS, HOSE, MOLDED GOODS, PACKING, TANK LINING built to the world's highest standard of quality, phone your nearest Goodyear Industrial Rubber Products Distributor.

Compass—T. M. The Goodyear Tire & Rubber Company

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V-BELTS

TEXTILE BANKING COMPANY

Inc.

Factoring Service

Puts your sales on a cash basis
Strengthens your cash position
Relieves you of credit losses

55 MADISON AVENUE • NEW YORK

Sizing

. . . in the modern manner

SLIX a new type warp lubricant, is dramatically reducing loom stops, increasing production and improving quality by affording greater weavability to starch-sized warp yarns, both cotton and spun rayon.

SLIX a milk-white emulsion of high-melting point fats and fatty matter, has been designed as a one-piece liquid sizing material completely filling all the requirements of preservation, mildew-inhibition and hygroscopicity.

SLIX is applied separately from the starch under the process patented in U. S. Patent No. 2,074,745. The separate application is accomplished with the Warp Lubricator Unit which is easily installed on any conventional type slasher.

SLIX applied at the outer edge of the individual ends, affords greater surface lubrication which reduces warp stops. The mechanical lubrication of the shuttle and other loom parts effects an amazing reduction in filling stops.

SLIX being hot water extractable, is more easily removed in the desizing operation and is meeting every demand of fabric finishers and processors. Increased rinsability is proving particularly advantageous with the spun rayon fabrics.

SOUTHERN SIZING COMPANY

INCORPORATED 1930

POST OFFICE BOX 167
ATLANTA 1, GEORGIA

•

POST OFFICE BOX 128
EAST POINT, GEORGIA

FOR YOUR INFORMATION

NOW... BETTER MERLON FINISHES REACH WIDER RANGE OF FABRICS

Better finishes . . . for a greater variety of fabrics . . . are indicated by new laboratory developments with the Merlons, Monsanto's series of thermoplastic resin dispersions. Finishes both soft and durable, and of high quality and economy, can be achieved with the Merlons without curing or after treatment. State your problem in the handy coupon and you will get full information in addition to more news about these major applications:

COTTON SHEETS: Monsanto's Merlon is already doing an outstanding job for cotton sheets . . . the softer, finer finishes appeal to department store buyers. The better "hand" remains on the merchandise after washing.

COTTON DENIMS: Abrasion resistance . . . an outstanding property of Merlon formulations . . . gives added toughness, longer life, better general wearability to fabrics ranging from heavy-duty cotton denims to light sheetings. Increases in abrasion-resistance of from 100 to 300% have been noted.

RUG BACKING: Merlon resin has an adhesive effect in locking pile yarns to the base fabric . . . besides adding strength and body to the fabric. The resins promise to produce outstanding results in rugs, pile fabrics and similar weaves.

AND OTHERS: These applications are only a small sampling of all the products which can get better, more durable finishes with Monsanto's Merlons. Whether or not your fabric is named above, you might well find that the Merlons will do a better, more economical finishing job for your fabric.

Technical bulletins on the Merlons are available. And so are trained Monsanto technical personnel who will help you adapt Merlon to your specific needs. The handy coupon checked at H1 will bring you complete information.

AUTOMOBILE UPHOLSTERY: Here again, long-term durability and wear . . . given by increased abrasion resistance and fabric strength . . . make the Merlons outstanding. In fabrics like automobile upholstery . . . subject to more than ordinary wear and tear . . . Merlon holds fibers intact within the body of the fabric.

FINE WOOLEN FABRICS: In many of the fine grades of woolen fabrics, the Merlon resins reduce pilling. That's why Merlon formulations are suggested for suitings . . . and for similar consumer merchandise using high grade wool.

COTTON: Easy to apply . . . it's necessary only to pad and dry fabrics with the diluted Merlon. No lengthy finishing operations are involved. Faster production with Merlon spells greater over-all economy . . . pound for pound of finish.

WHAT THE MERLONS ARE: Monsanto has three series of Merlon thermoplastic resins: One series, Merlon KR, is a group of polyvinyl acetate dispersions in water; Merlon BR and BRS are polyvinyl butyral resins and Merlon S and SP are polystyrene dispersions. By combining these Merlons in varying formulations and concentrations, they can be adapted to practically all types of textile finishing.

STED gives uniform scouring results

Consistently good, uniform, predictable and controlled scouring results . . . despite varying degrees of water hardness . . . are assured with Sted, Monsanto's powerful, yet gentle all-purpose textile detergent. A given amount of Sted does a uniformly outstanding job in all textile cleaning operations.

Sted removes soil and holds it in suspension off the fabric . . . so that it is rinsed without redeposition. It is used for:

WOOL: Raw Wool Scouring.
Scouring tops.
Scouring before dyeing.
Skein Scouring.

RAYON: Removes graphite grease and sizing, and is used as an afterwash in rayon finishing.

COTTON: Kier boiling, continuous bleaching and soaping off prints.

Economical Sted is now succeeding in the toughest textile job. Your inquiries are invited through H2 on the coupon.

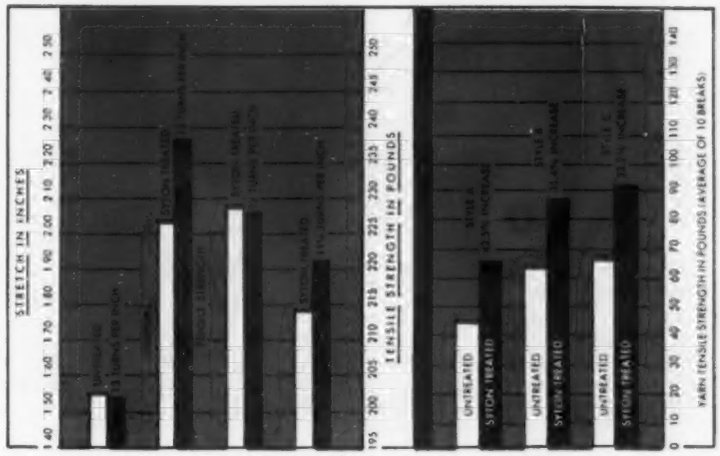
RESLOOM treated wool shirts are marketed by McGregor

Wool shirts . . . treated with Monsanto's Resloom Formula W for Washability . . . are being delivered to leading department stores by McGregor Sportswear. One shirt is a William Tell wool blend flannel Resloom-treated for washability and for soft "Thistle-down" hand. A second shirt . . . a Royal Wonderwool pure wool flannel . . . is certified launderable by the American Institute of Laundering.

To find out how you can get Resloom's proved results in your woolens, check H3 on the coupon.

Resloom, Merlon, Syton: Reg. U. S. Pat. Off.

New trials prove SYTON aids woolen and worsted spinning



The application of silica sols to textile fibers as an aid to spinning is covered by U. S. Patent 2,443,512 issued to Monsanto Chemical Company.

Now . . . many actual mill runs prove that Monsanto's Syton . . . on both woolens and worsted systems . . . increases yarn tensile strength from ten up to 30%. Applied at the picker for woolens and at the gill box for worsteds, usually in a spray or dip, this submicroscopic silica controls fiber lubricity . . . strengthens the yarn . . . and produces reports like these:

"A 20% to 30% increase in tensile strength with Syton."

"A 10% decrease in twist enabled us to maintain the same yarn strength with an 8% production increase."

". . . Syton gives good results in decreased fly and decreased ends down."

These comments illustrate major operating advantages mills get from increased yarn strength with Syton:

- **INCREASED PRODUCTION:** Since yarn strength is increased, the amount of twist necessary can be reduced and production speeded.
- **LOFTIER YARNS:** Less twist means loftier yarns . . . with tensile strength equal to or greater than that of untreated yarns of higher twist.
- **FEWER ENDS DOWN:** Reductions in ends down vary from 25% to 50% depending on the grade of wool.
- **IMPROVED SPINNING EFFICIENCY:** Produces more uniform yarn, with less beard and thin spots, reduced fly waste and better drafting.
- **FINER YARNS POSSIBLE:** Syton-treated yarns can be spun closer to the limit spin.

These successful mill runs are all the more reason why you should get in touch with Monsanto now . . . and find out how Syton will help you in your mill. You can get full information . . . and technical cooperation . . . by checking H4 on the coupon.

MONSANTO
CHEMICALS for PLASTICS

MONSANTO CHEMICAL COMPANY, TEXTILE CHEMICALS DEPARTMENT
Desk TIT 8, 140 Federal Street, Boston 10, Mass.

I am stating my problem in an attached letter so you can inform me specifically on ☐ *H1,* ☐ *H2,* ☐ *H3,* ☐ *H4.*

I wish general information on ☐ *Merlon,* ☐ *Syton,* ☐ *Sted,* ☐ *Resloom.*

Name _____ Title _____

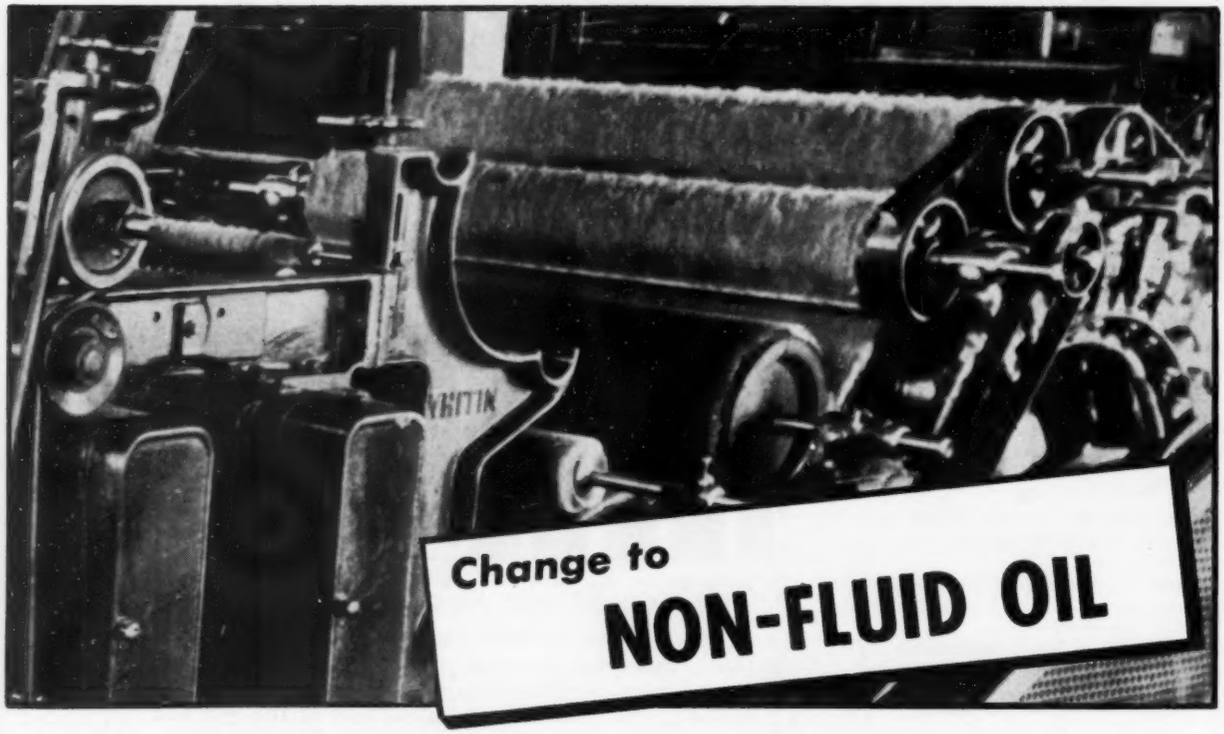
Firm _____

Address _____

City _____ State _____

SERVING INDUSTRY . . . WHICH SERVES MANKIND

Comb boxes get hot and wear badly?



Ordinary lubricants can't prevent wear . . . they won't stay in comb boxes. Cards lose adjustment due to play in the worn bearings and uneven sliver gives you trouble right through the mill. NON-FLUID OIL prevents wear and protects card adjustment because it stays in bearings.

Write for bulletin T5TI and free, testing sample of NON-FLUID OIL.

NEW YORK & NEW JERSEY LUBRICANT CO.

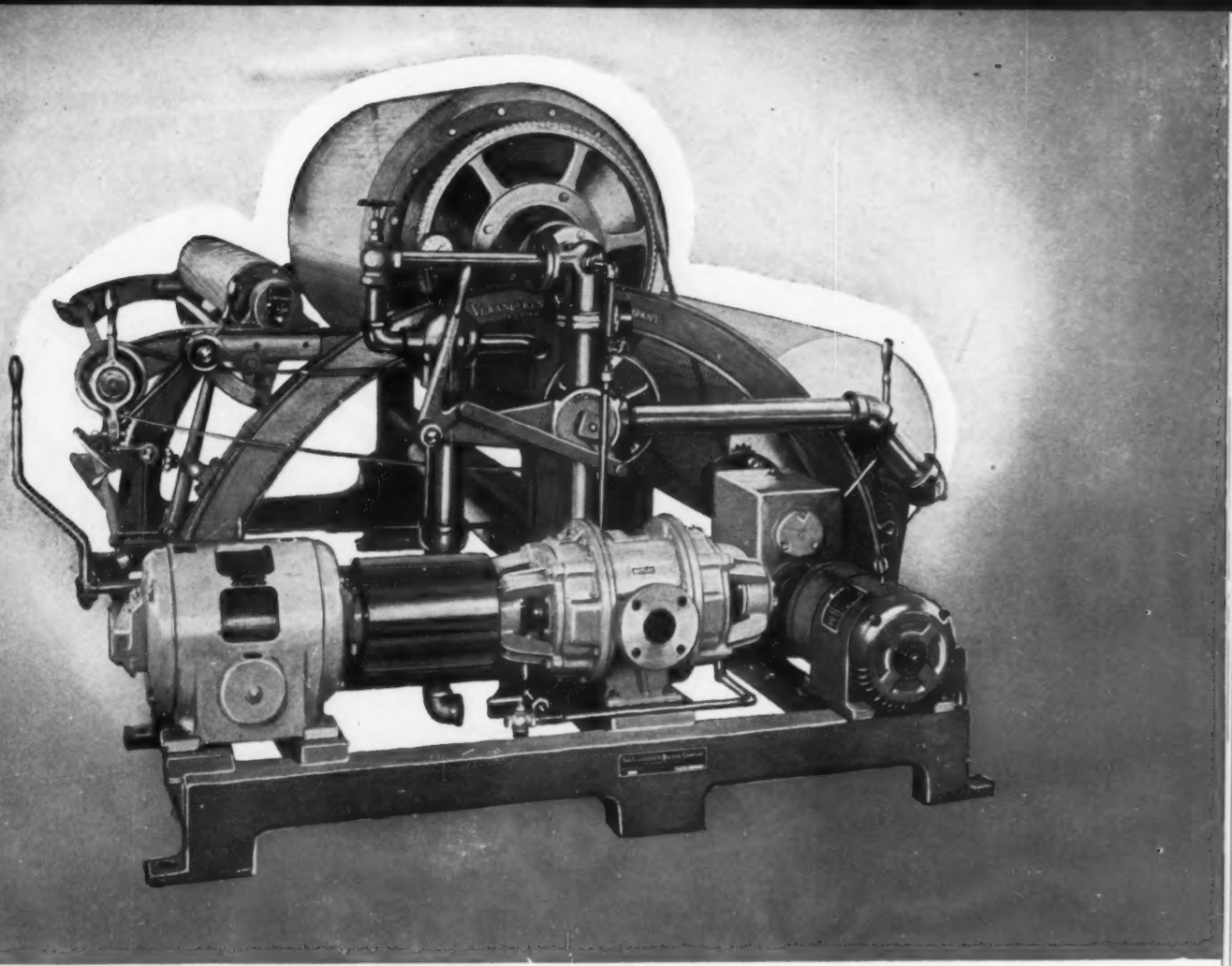
292 Madison Avenue • New York 17, N. Y.

Southern District Manager: FALLS L. THOMASON, Charlotte, N. C.

WORKS: Newark, N. J. — WAREHOUSES: Charlotte, N. C., Greenville, S. C., Atlanta, Ga., Providence, R. I., Detroit, Mich., Chicago, Ill., St. Louis, Mo.

NON-FLUID OIL is not the name of a general class of lubricants, but is a specific product of our manufacture. So-called fluid grease imitations of NON-FLUID OIL often prove dangerous and costly to use.

NON-FLUID OIL
TRADE MARK REGISTERED



DECATE MODERN FABRICS

TO CORRECT HARSH HANDLE, BREAKS, EXCESSIVE LUSTRE AND CLOUDY OR BLOTCHY DYEING

The conditioning machine shown above is well known to the trade. In many plants it has, for over ten years, been depended on to give that finishing touch to viscose and acetate rayon as well as to other fine fabrics, at a cost so low per yard that it need scarce be considered.

From time to time during the last few years we have made improvements to permit better production. For instance: faster take out speed, faster pick up speed and quicker brake action, faster removal of condensation and faster unloading speed.

The many new fabrics of man-made yarns that are now becoming available will also be greatly improved by decating. We will send, on request, an eight-page book giving decating information and a full description of the Van Vlaanderen Decater.

BETTER DECATER BLANKETS

Immediate Delivery

New improved superior double face sateen blankets now stocked in 52", 56", and 72" widths and lengths from 400 to 1000 yards.

Now used on hundreds of decaters, this blanket gives longer service, better quality work and better production.

Send for a sample of this blanket. Telephone, telegraph or write now.

VAN VLAANDEREN MACHINE CO.

370 STRAIGHT STREET — PATERSON, NEW JERSEY

World's largest manufacturer of machinery for processing modern fabrics

Quick!

Medley Makes Short Work of

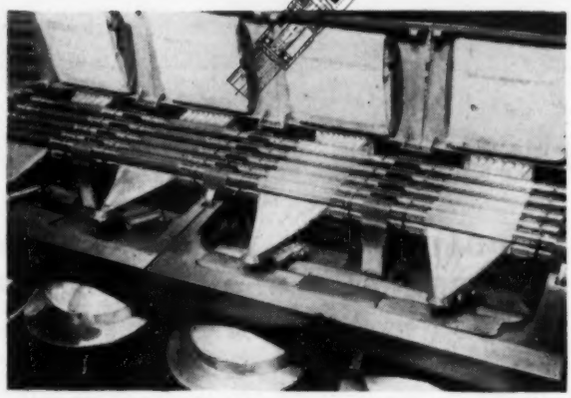
Roll Repairs

ON THE MARK with Medley quick roll repair service . . . GET SET to meet increased production schedules . . . GO for better slubbing, roving and spinning with fewer ends down . . .

By co-ordinating the efforts of three strategically located and capably staffed plants, Medley is able to offer roll repair and replacement service to mills in any of the country's textile centers.

Medley's unique method of restoring the outside diameter of metallic rolls to their original dimension without affecting their hardness or wearing quality has meant important savings to operators throughout the industry. This service is designed to reduce idle machinery time to a minimum and to make for maximum efficiency in operation.

Check today . . . let Medley show you how idle machinery time and lost man-hours can be saved by using this valuable roll repair service. A postcard or a call is all it takes.



Medley Precision
DRAWING ROLLS

The famous Medley Sealed-in Ball-bearing, permanently lubricated top drawing rolls are standard equipment on Medley "8 Ends Up" or conventional 6 ends up drawing frames. Also, any standard make drawing frame can be changed over to this more efficient drawing . . . capable of adjusting to draw any fiber in staple lengths from 5/8 inches to 13 inches.

Investigate this better drawing roll.

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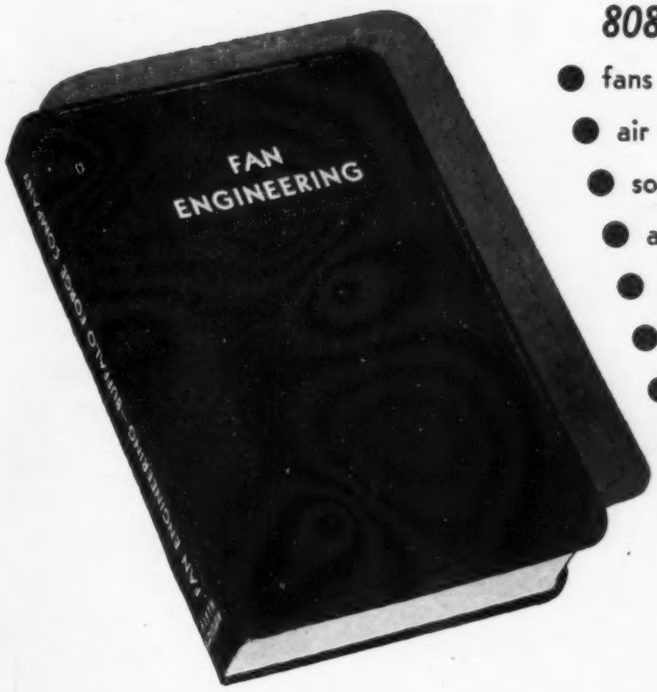

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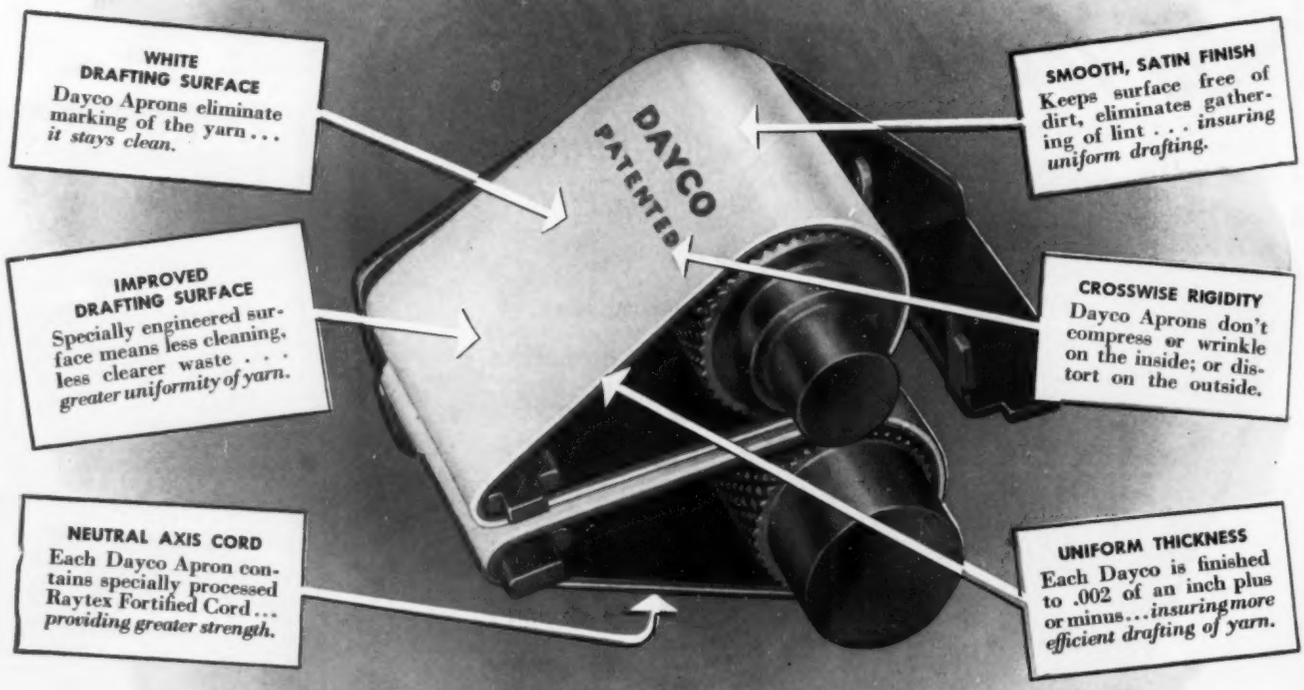
6 reasons why you should standardize on

DAYCO LONG DRAFT APRONS



WHITE DRAFTING SURFACE
Dayco Aprons eliminate marking of the yarn . . . *it stays clean.*

IMPROVED DRAFTING SURFACE
Specially engineered surface means less cleaning, less clearer waste . . . *greater uniformity of yarn.*

NEUTRAL AXIS CORD
Each Dayco Apron contains specially processed Raytex Fortified Cord . . . *providing greater strength.*

SMOOTH, SATIN FINISH
Keeps surface free of dirt, eliminates gathering of lint . . . *insuring uniform drafting.*

CROSSWISE RIGIDITY
Dayco Aprons don't compress or wrinkle on the inside; or distort on the outside.

UNIFORM THICKNESS
Each Dayco is finished to .002 of an inch plus or minus . . . *insuring more efficient drafting of yarn.*

and, In addition, every DAYCO APRON

is tested for thickness!

Each Dayco Apron is tested to meet your specifications for single or double apron systems. Inside diameters are held to $\frac{1}{64}$" and thickness to .050, + or − .002 . . . another reason Daycos draft up to 10 percent more uniform yarn.

The above are but *a few of the many* reasons leading mill men insist on Dayco Long Draft Aprons for every frame in their spinning rooms.

Important, too, is their nonstretch feature that keeps them on the frames when you start up. Nondirectional Daycos can be put on either way. They are manufactured without laps or splices and are finished smooth inside without rib.

Dayco Long Draft Aprons are designed to handle natural or synthetic fibers better, more economically. If you aren't using Daycos on your frames, it will pay you to write for additional information, or have one of our textile machine accessory engineers call on you. He can show you additional ways to economical production of better yarn. Write The Dayton Rubber Co., Dayton, Ohio, *or Textile Division —Main Sales Office, Woodside Building, Greenville, S. C.*

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Speed changes are quickly made with the two-piece QD Sheave

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OUTSTANDING QUALITY in every item from Crane assures uniform efficiency and dependability throughout any piping system.

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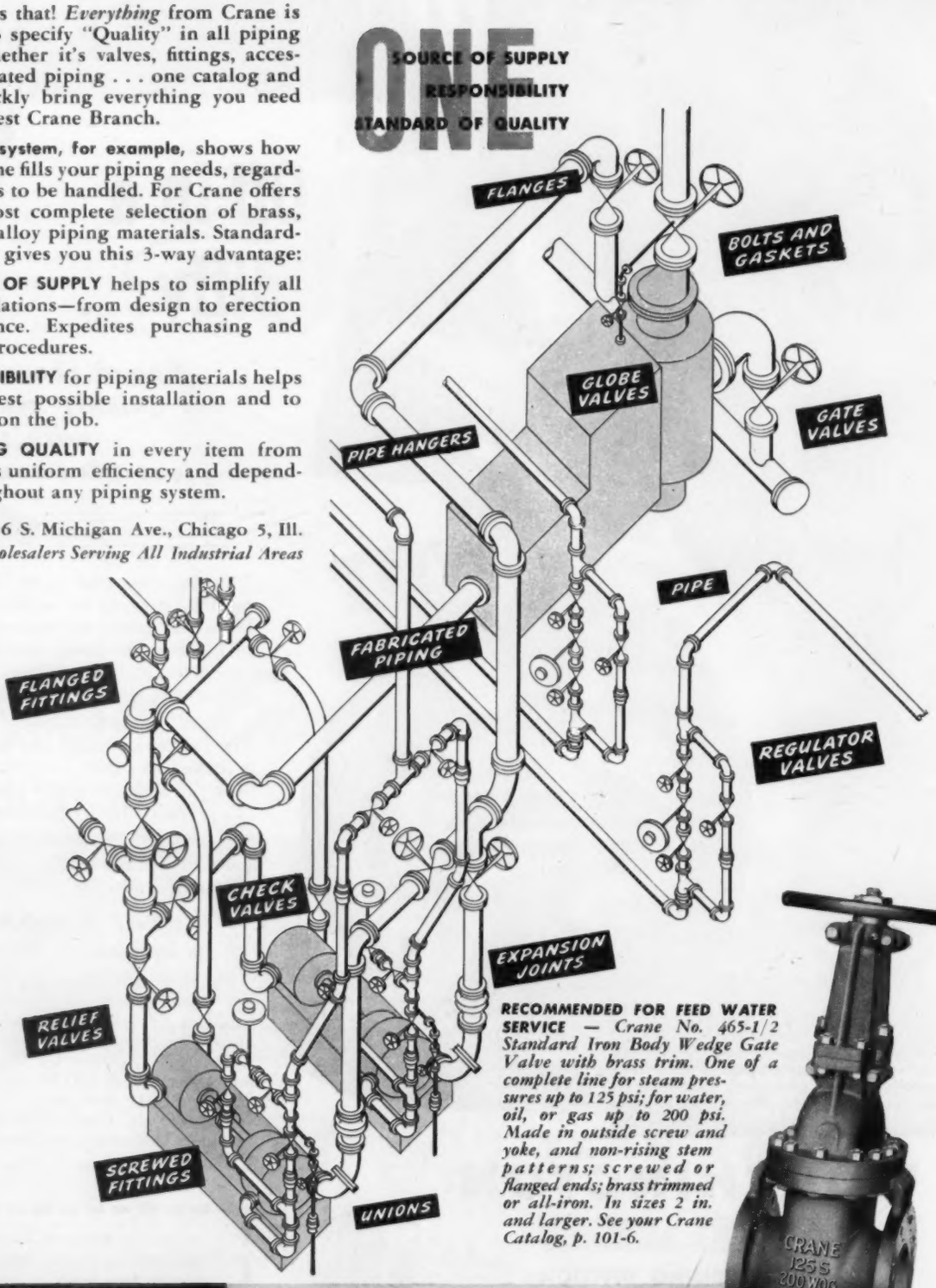
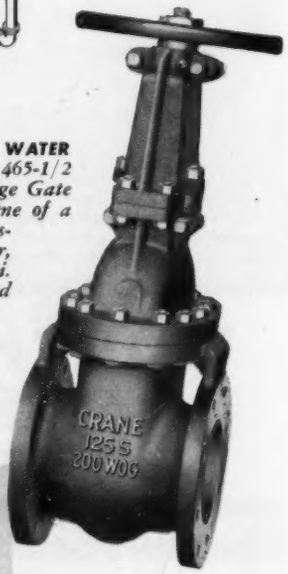


RECOMMENDED FOR FEED WATER SERVICE — *Crane No. 465-1/2 Standard Iron Body Wedge Gate Valve with brass trim. One of a complete line for steam pressures up to 125 psi; for water, oil, or gas up to 200 psi. Made in outside screw and yoke, and non-rising stem patterns; screwed or flanged ends; brass trimmed or all-iron. In sizes 2 in. and larger. See your Crane Catalog, p. 101-6.*



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FOR IMMEDIATE SINKING IN WATER...

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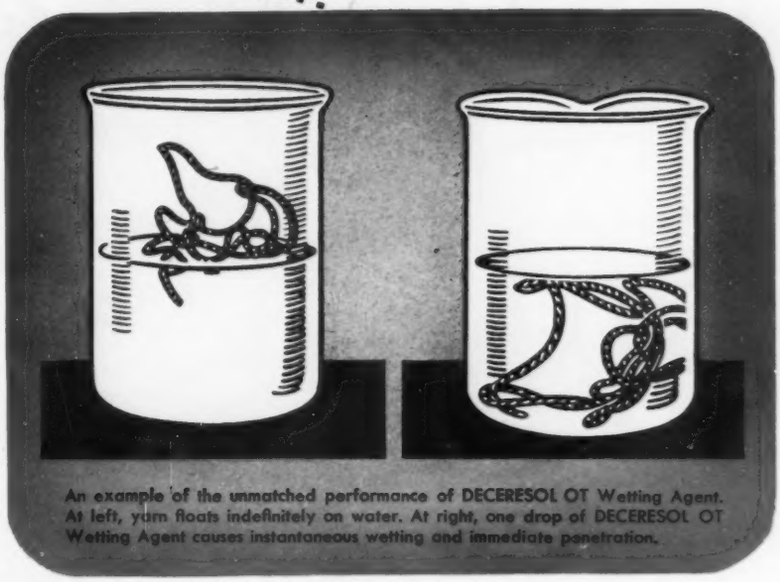

An example of the unmatched performance of DECERESOL OT Wetting Agent. At left, yarn floats indefinitely on water. At right, one drop of DECERESOL OT Wetting Agent causes instantaneous wetting and immediate penetration.

...DECERESOL OT Wetting Agents

You get speedier application in the wetting of textiles – better penetration, dispersing and dye levelling properties – when you standardize on Cyanamid's DECERESOL* OT Wetting Agents, now again available in larger quantities.

But that is only *one* side of the story. DECERESOL OT Wetting Agents are also very economical to use. A little of it goes a long way. Its efficiency lowers costs, saves time.

And don't forget this *third* important advantage: the continual use of DECERESOL OT Wetting Agents results in *higher quality production*, as well.

If you are not now using DECERESOL OT Wetting Agents, it will pay you to write for further information about these superior wetting agents. Or, if you wish, one of our representatives will be glad to call and demonstrate DECERESOL OT Wetting Agents to you personally.

AMONG CYANAMID PRODUCTS FOR THE TEXTILE INDUSTRY ARE . . . AQUASOL* Sulfonated Castor Oils; NO-ODOROL* Finishing Oils; DECERESOL* OT Wetting Agents; PARAMUL** 115 Water Repellent; Penetrants, Softeners, Finishes, Sizing Compounds, and other specialties and Heavy Chemicals. For low-cost chemical equivalent of distilled H_2O . . . FILT-R-STIL* Demineralizing Units.

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American Cyanamid Company

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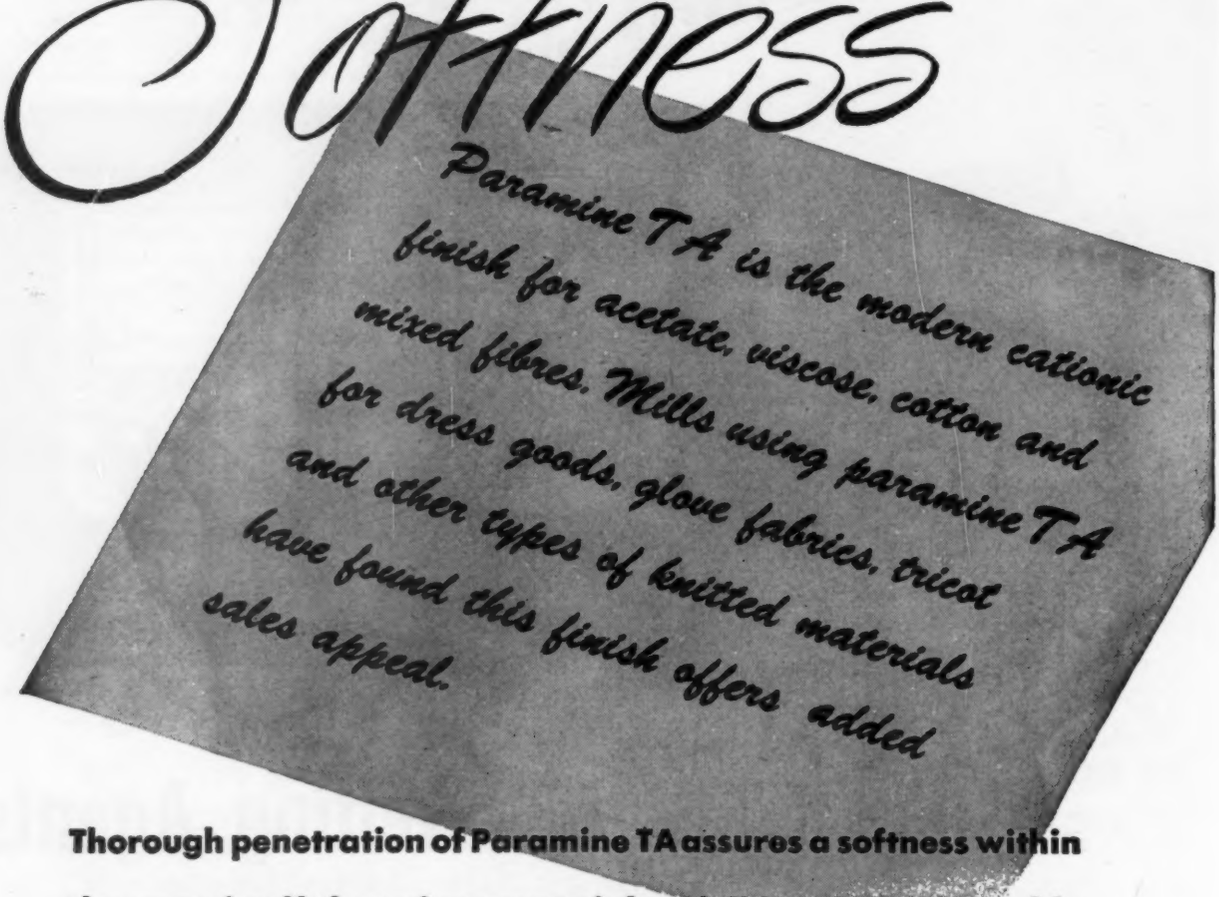
DURABLE *Softness*


Paramine TA is the modern cationic finish for acetate, viscose, cotton and mixed fibres. Mills using paramine TA for dress goods, glove fabrics, tricot and other types of knitted materials have found this finish offers added sales appeal.

Thorough penetration of Paramine TA assures a softness within the yarn itself that gives materials a full hand and desirable drape—its substantive action produces a durable, lasting finish

—Application is simple.

Use Paramine TA

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FROM TREE TO MILL TO PLANT TO SITE TO YOU

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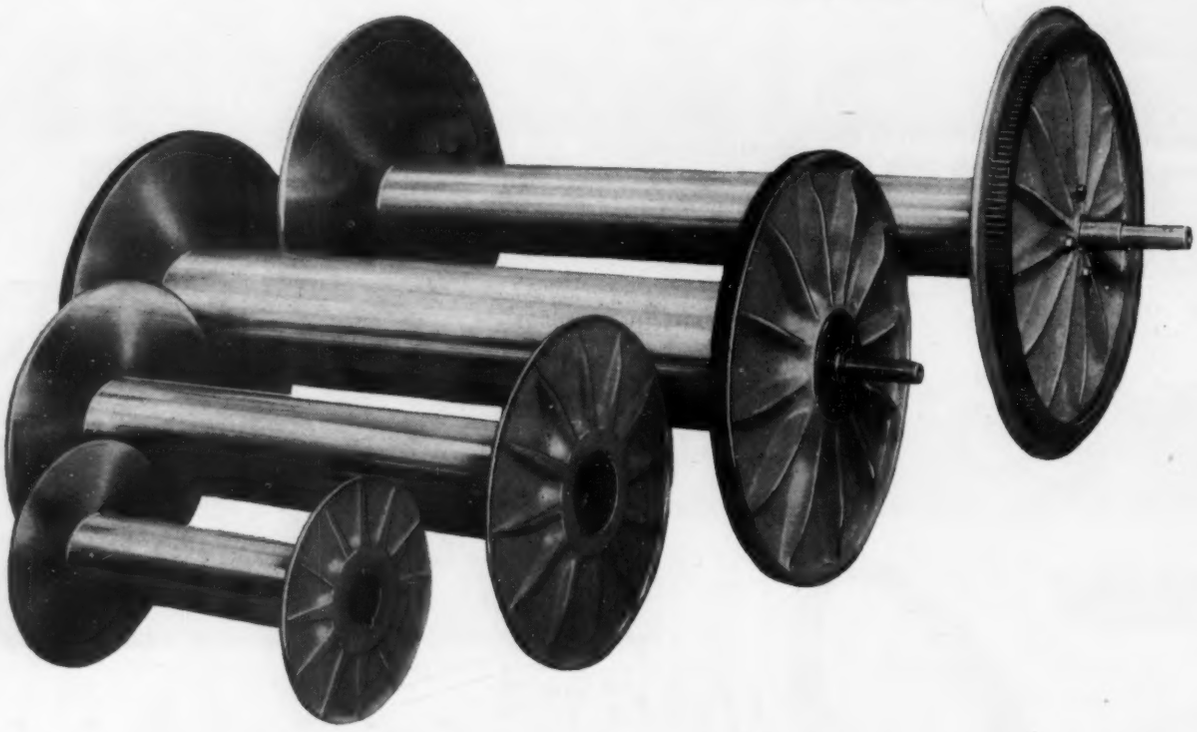


Hayes Offers a Complete Line of Light Metal Textile Beams in Standard Sizes

Let Hayes accurate, precision-built aluminum or magnesium beams reduce costs and down-time in your mill.

These well-balanced Section and Tricot beams run at high speed, do not warp and have practically no spread of heads — and are *half the weight of wood and steel beams.*

The use of Hayes large or regular size, light weight, polished, aluminum, true-running, rustproof Loom beams contribute to better weaves, less rejects and fewer stops.

A 32" diameter head beam gives you 80% more yarn capacity than a 24" diameter beam.

We now offer this new type, well designed, and expertly manufactured textile equipment at astonishingly low prices. Prompt delivery.

Write, phone or wire your requirements

HAYES INDUSTRIES, INC.

JACKSON, MICHIGAN, U. S. A.

A BUYING GUIDE FOR ABRASIVES

ABRASIVE PROBLEM:

Is the correct abrasive available?

ANSWER BY

CARBORUNDUM

TRADE MARK

The Carborundum Company produces the only complete line of abrasives under one trade mark. With industrial techniques utilizing a wider variety of different abrasive products, it is only logical to turn to The Carborundum Company as the one primary source of all abrasive needs.

The specialized service of experienced representatives is available to recommend, impartially, the best abrasive products for specific requirements. Product quality is known and highly regarded. Satisfaction is assured. Responsibility is definitely fixed and undivided.

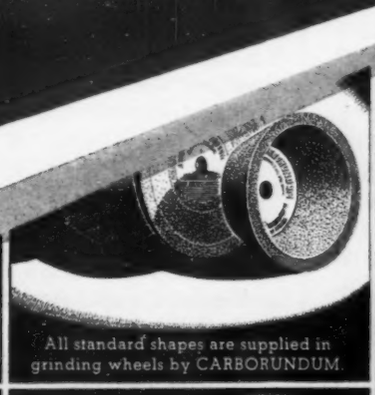
In part, this helps explain the increasing preference for abrasives by CARBORUNDUM. The Carborundum Company, Niagara Falls, N. Y.

A Good Rule for Good Grinding...CALL IN

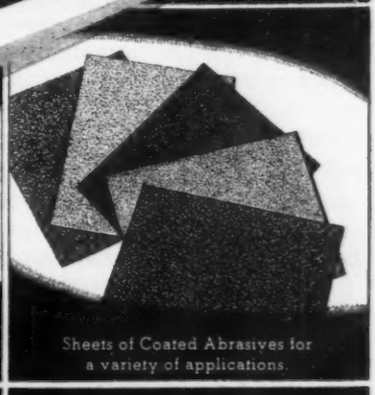
CARBORUNDUM

TRADE MARK

- BONDED ABRASIVES
- COATED ABRASIVES
- ABRASIVE GRAINS AND FINISHING COMPOUNDS



All standard shapes are supplied in grinding wheels by CARBORUNDUM.

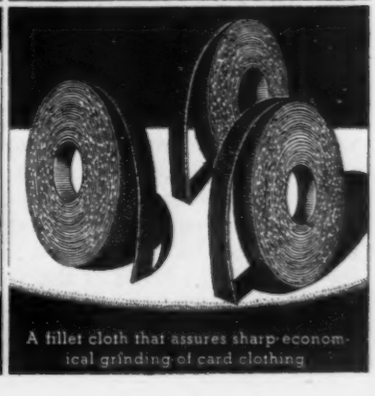


Sheets of Coated Abrasives for a variety of applications.

"Carborundum" is a registered trademark which indicates manufacture by The Carborundum Company.

Tool Room sticks and stones that cut fast, last long, and hold their form.

Texalox roll covering grips fabrics firmly, surely but gently.

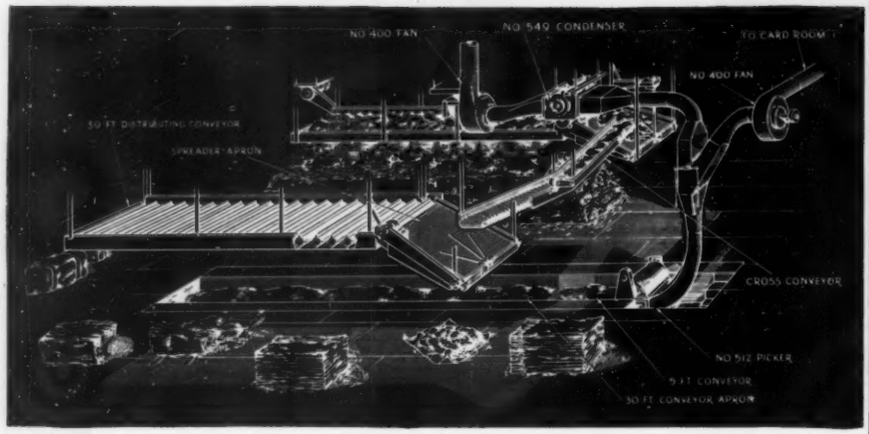


A fillet cloth that assures sharp economical grinding of card clothing.

TEXTILE MACHINERY and

PUBLISHED BI-MONTHLY FOR TEXTILE MILL EXECUTIVES AND OPERATING PERSONNEL BY PROCTOR & SCHWARTZ, INC.

Semi-Automatic Blending System Applicable to Variety of Mill Needs



To meet the blending requirements of the moderate size mill, Proctor textile engineers have developed this very efficient semi-automatic system. It offers many of the advantages of the highly automatic systems—yet does not involve nearly as great an investment in equipment.

The system is made up of a Proctor super picker with a long conveyor apron; a ceiling condenser; a cross conveyor; two spreader aprons and two long roller distributor conveyors.

The operation is simplicity itself—and may be varied to meet individual mill requirements. Briefly, here is how the system operates: Workmen lay out weighed component stocks of the blend on the floor beside the long feed apron of the picker. If that apron is in a pit, as shown on the drawing, all that is necessary is to spread the stocks along the entire length of the feed apron one layer after another. The stocks are then run through the picker and conveyed by a pipe to the ceiling condenser. From the condenser, stock is deposited onto a cross conveyor which conveys to either of the spreader aprons for transferal to one of the roller distributor conveyors which is suspended from the ceiling. The rolls of this roller distributor revolve in a forward direction until the entire conveyor has been covered with stock—at that moment every other roll reverses itself and the rolls become feed rolls—dropping the stock to the floor—laying the first blend. When all of the stock of the blend has been run through the picker and deposited in the blended pile—it is then fed again to the picker apron—goes through the picker and may be conveyed directly to the card room. For most blending these two pickings are sufficient. For more thorough blending—or for handling difficult blends—after the second picking the stock would be conveyed to the second roller distributor—deposited on the floor in another blend and then put through the picker for the third time before finally going to the card room.

This system which represents a modest investment—none the less—provides many advantages of automatic blending. Labor requirements in the picker house are reduced tremendously—blending is thorough and accurate—yet the system is within the reach of virtually any woolen or similar type of mill. For complete information on a blending system to meet your individual needs—write today. Give as much information as possible to help us intelligently answer your inquiry.

STILL A FEW COPIES OF "TEXTILE DRYING" AVAILABLE

A few months ago when Myron Fleming, Proctor sales-engineer, addressed the American Association of Textile Chemists and Colorists on the subject of "Textile Drying"—his talk was reprinted in booklet form. This has been one of the most popular bits of literature ever issued by Proctor & Schwartz—probably because it is such a lucid discussion of a highly important subject.

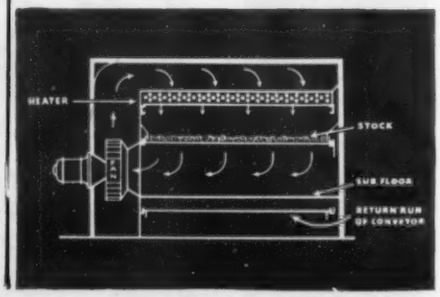
There are still a few copies available. If you do not already have yours—write today, while the supply lasts.

Super Dryer Found Well Suited to Rayon Staple

After considerable experimentation and research—it is now well established that the Proctor super dryer is the type of drying system best suited to high output of rayon staple.

Heated air passing through the bed of staple on continuously moving conveyor promotes rapid, thorough and uniform drying. This air circulation proved to be better suited to the characteristics of rayon staple than any other tested. The refinements in design make it simple to operate and easy to clean.

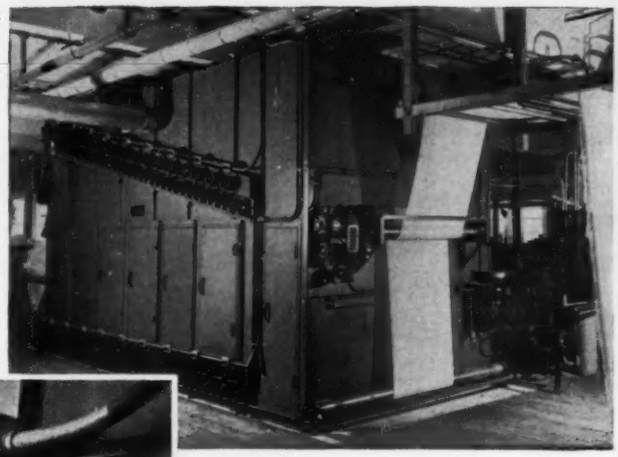
Write today for complete details on how this drying system can increase the efficiency of your operation.



DRYING EQUIPMENT News

• AUGUST • 1948 •

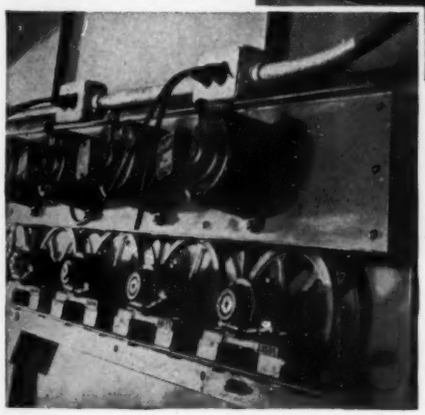
Individually Motor Driven Rolls Make Possible "No Stretch" Drying



Installation shows Proctor roller curer in operation.

Close up shows individual motor drive for each roll.

Diagram below shows travel of cloth and air circulation when used as a dryer.



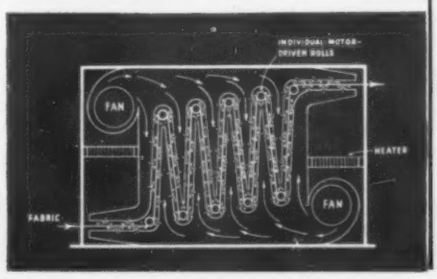
To meet the needs of textile finishers for "no stretch" drying Proctor engineers have developed the roller type dryer—with individually motor driven rolls. Although this machine does not represent an extremely new development—so much interest has been shown in its principle of operation that it is worth reviewing here.

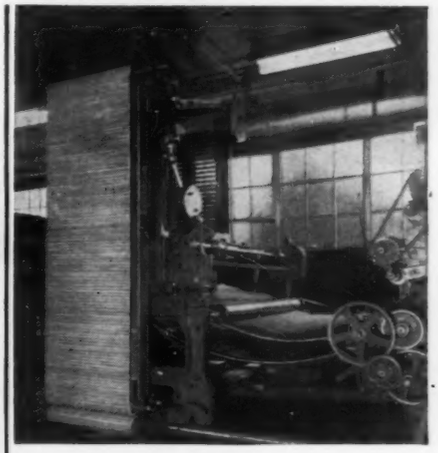
Each roll, over which the material travels, is individually driven by a "shaded pole" motor, which will automatically vary in its speed with the degree of tension placed upon it by the cloth. Thus, the speed of the roll is automatically regulated to compensate for shrinkage in the cloth. It is obvious that when material enters the dryer at a certain length, it will be running at a given lineal speed.

As the material shrinks it will have to be compensated for by the speed of the rolls, if "no stretch" drying is to be accomplished. This action is entirely automatic in the Proctor roller dryer. Since the motors will pull only what is fed to them and no more, there is a minimum tension on the goods warp-wise and no tension at all on the filling. The tendency for goods to narrow up or wrinkle is eliminated.

With certain modifications in design but retaining the individual roller feature, this machine is frequently supplied for curing resin treated fabrics.

For complete information on this highly efficient dryer or curer write today and indicate whether you are interested in drying or curing.





Intermediate Feeder Improves Blending

A new intermediate feed for woolen cards has been developed by Proctor engineers which shows great promise for improving blending.

The feeder removes the web from the breaker-card doffer in three sections. These sections each pass over turning plates which turn them 90° and lay them on top of each other on a moving apron. The triple thickness web is then carried upward to a swinging lapper which lays it across the width of the moving apron feeding to the intermediate or finisher card. The result is better blending of fibers than previously achieved.

One of the principal advantages claimed for this type of feeder is that carded wool from the breaker card is not rolled-up, squeezed together or folded over in any way which might affect the evenness of the delivery. This makes a lap which is built up for feeding to the subsequent card entirely made up of soft, open fiber of equal thickness at any point.

For details on application of this new feeder in your operation—write today.

Proctor & Schwartz Inc. • 610 Tabor Road • *Philadelphia 20, Pa.*

Expert Supervision Knows
When Card Clothing Needs to Be Replaced

The Tufferizing Process—developed, owned and used exclusively by Howard Bros. — cuts and forms wires with an accuracy never before obtained in the making of card clothing. The wires are formed with precision and placed accurately in the famous Tuffer Foundation . . . when drawn on the cylinder they fit snugly — *sides perfectly parallel and every point in place.*

The top notch superintendent knows that the cards taking the brunt of the work need to be inspected more often than the others . . . and that if maximum efficiency is to prevail, *all cards* must have uniformly high quality clothing.

Precision-made Tuffer Card Clothing meets the requirements of those who *know* the best . . . and *want* the best! It increases production, improves the quality . . . and reduces carding costs.

For complete information ask our representative or write to any Howard Bros. plant or office.

HOWARD BROS. MFG. CO. WORCESTER 8, MASSACHUSETTS

Southern Plants: Atlanta, Ga., and Gastonia, N. C.

Branches: Philadelphia, Pa., and Blanco, Texas Direct Representation in Canada

A-2

TUFFER CARD CLOTHING ***IMPROVES PRODUCTION ALL ALONG THE LINE***

Rayon Reports

Techniques for Handling Paper Covered Cake

From the New Supplement to the booklet, "The Handling of Rayon Cakes." Write for a copy.

FILLING WINDING

1. In winding for filling, the cake is placed on the setup in the usual manner and the bottom half of the cover is turned down over the base of the cake holder.

2. The upper half is torn back to the insert, then pulled out from the cake, straightened and then tucked into the top of the insert. Tearing of the cover and lifting away from the yarn prevents disturbing the outer layers of yarn which would happen if this upper part is pulled off similar to the procedure used with knit covers.

3. The pie plate is then placed on the holder and cake is ready to run.

CAKE SOAKING

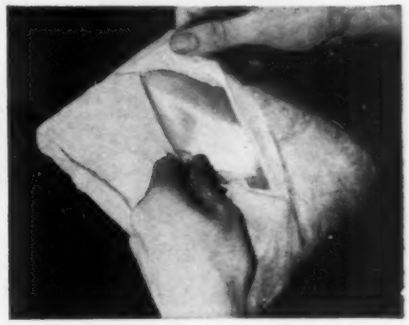
The paper being very permeable enables cakes to be handled in the same manner in treating or soaking as the knit cover. It has been found, however, that the paper cover has a tendency to trap air when the cakes are lowered into the soaking solution. To overcome this the cakes are wet out by pouring some of the soaking solution over the trays or basket before immersion in the soaking tub. The paper clings to the cake allowing rapid pick up of solution and eliminating the air pocket which would form between the paper cover and the yarn.

After soaking is completed the surplus liquor is allowed to drain from the cakes and they are extracted in the usual manner. Before drying, the yarn should stand a few minutes to give the paper a chance to dry on the inside of the cake which makes opening and shaping easier when placing on the dryer pole.

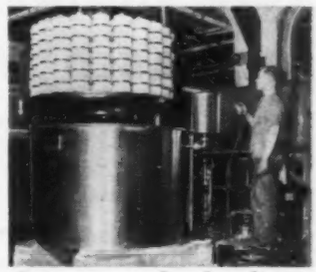
After drying the yarn is conditioned in the usual way and is ready for winding. In winding the same procedure is used in the setting up of the cake as described above for filling winding.

New Paper Cover for *Avisco Rayon Cakes Eliminates Return Problem of Knitted Covers

New one-way paper cover protects yarn . . . does away with returns.



Good running qualities because paper cover does not disturb yarn alignment.



Paper-covered cakes being processed on a commercial scale.

A disposable tubular paper cover for rayon cakes has been developed by American Viscose Corporation.

This innovation means that the handling problems, bookkeeping included, entailed by the more costly, non-disposable knitted covers can now be eliminated.

The paper-covered cake has already been successfully used by many mills and its practicability clearly demonstrated. Not only have users found it more convenient, but in many cases superior efficiency is reported. Their experience indicates that the cakes are more likely to remain undisturbed during shipment, minimizing waste and promoting greater efficiency in unwinding and throwing. Because of its permeability and high degree of wet strength excellent results have been obtained in soaking, dyeing, drying and extracting.

*Patented

MAKE USE OF *Avisco*® 4-PLY SERVICE

To encourage continued improvement in rayon fabrics, American Viscose Corporation conducts research and offers technical service in these fields:

1 FIBER RESEARCH
2 FABRIC DESIGN
3 FABRIC PRODUCTION
4 FABRIC FINISHING

AMERICAN VISCOSE CORPORATION

America's largest producer of rayon

Sales Offices: 350 Fifth Avenue, New York 1, N. Y.; Charlotte, N. C.; Cleveland, Ohio; Philadelphia, Pa.; Providence, R. I.

BARBER-COLMAN

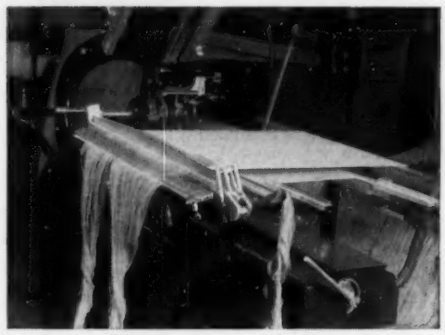
MODEL "LL"

Portable

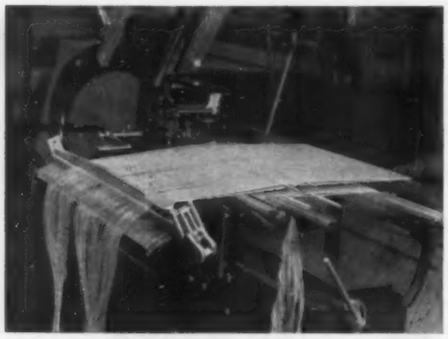
WARP TYING MACHINE

THIS "UNIVERSAL" MACHINE TIES IN EITHER PLAIN OR LEASED WARPS WITH EQUAL SPEED AND EFFICIENCY

Under the conditions of modern styling, many mills need versatile equipment to handle frequent changeovers between filament and spun synthetic yarns. The Barber-Colman Model "LL" Portable Warp Tying Machine is extremely useful under such conditions because of its adaptability. It is a combination machine, with interchangeable selector mechanisms to select from either an end and end lease or a flat sheet. A trained operator can make the necessary changes in less than ten minutes. The production rate when tying from an end and end lease is the same as when tying from a flat sheet. Under average conditions, a good operator can tie up to 4000 ends an hour, or better. This machine is particularly valuable in mills where both flat and end and end leased warps are coming through, and where the use of separate machines is not justified as they would not be utilized to their fullest capacity.



Barber-Colman Model "LL" Portable Warp Tying Machine set up to tie in new warp from a flat sheet.



The same machine as above, but now loaded for tying-in leased warps, as shown by the lease rods.

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • DRAWING-IN MACHINES

BARBER-COLMAN COMPANY

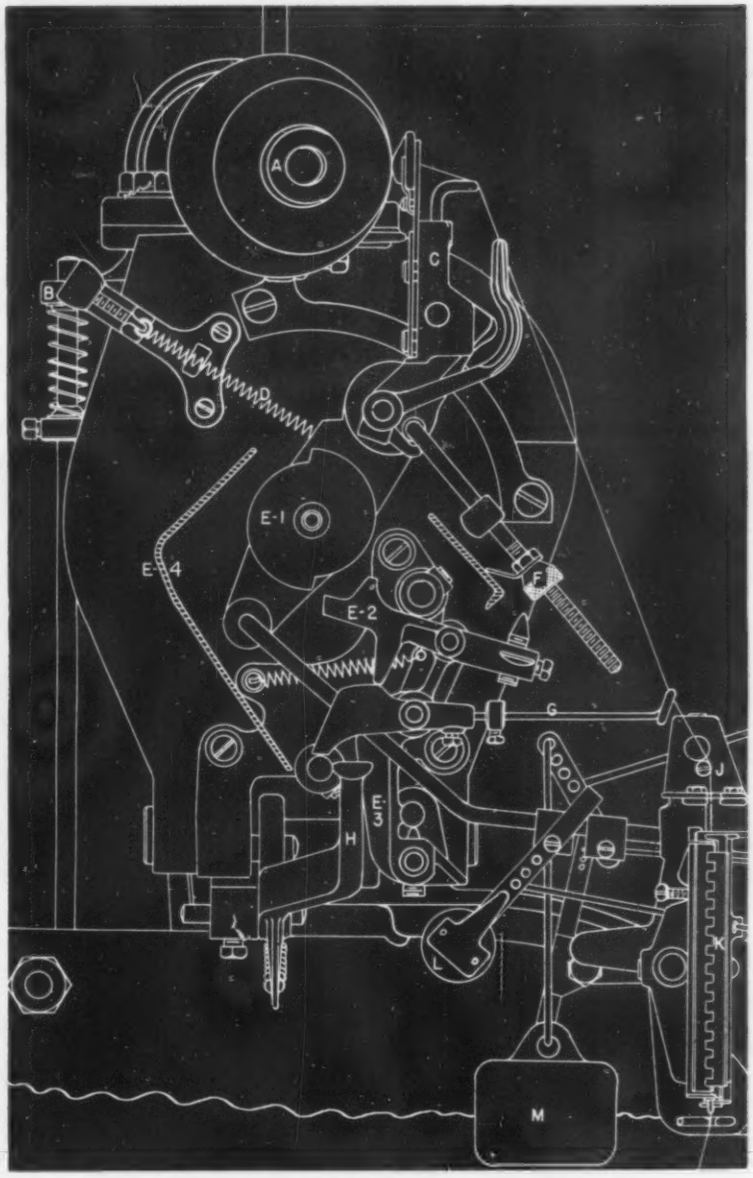
ROCKFORD • ILLINOIS • U. S. A.

FRAMINGHAM, MASS., U. S. A. GREENVILLE, S. C., U. S. A. MANCHESTER, ENGLAND

BLUEPRINT FOR QUALITY

This diagram is your blueprint for quality. The Foster Model 75 protects the quality of delicate filament yarns and the Foster Model 75 package is truly an "ambassador" of this quality. Its performance in the mill also lives up to its promise.

To those who are mechanical minded, the blueprint of winding head with cover removed herewith shows why.



A. 3°30′ or other taper straight edge cone, pineapple cone, or parallel tube, by use of suitable attachment.

B. Automatic spindle brake — operates when head tilts.

C. Guideway.

D. Guideway balance spring.

E. Stopmotion. 1 — Kicker
2 — Trip lever
3 — Latch
4 — Cover

F. Micrometer package size stop.

G. Balanced wide lash drop wire.

H. Starting handle operating tilting head for slow start.

J. Foster-Zenith yarn cleaner — interchangeable and reversible blades adjustable from .000″ to .040″.

K. Wide lash finger tension — chrome plated — release controlled by package diameter.

L. Tension weight — sizes for a wide range of yarns.

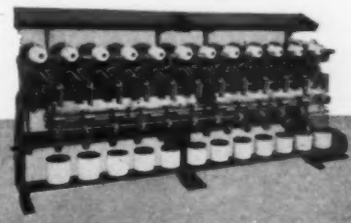
M. Pressure weight — determined by pressure required—release controlled by package diameter.

SEND FOR BULLETIN A-92-A

FOSTER MACHINE COMPANY

WESTFIELD, MASSACHUSETTS

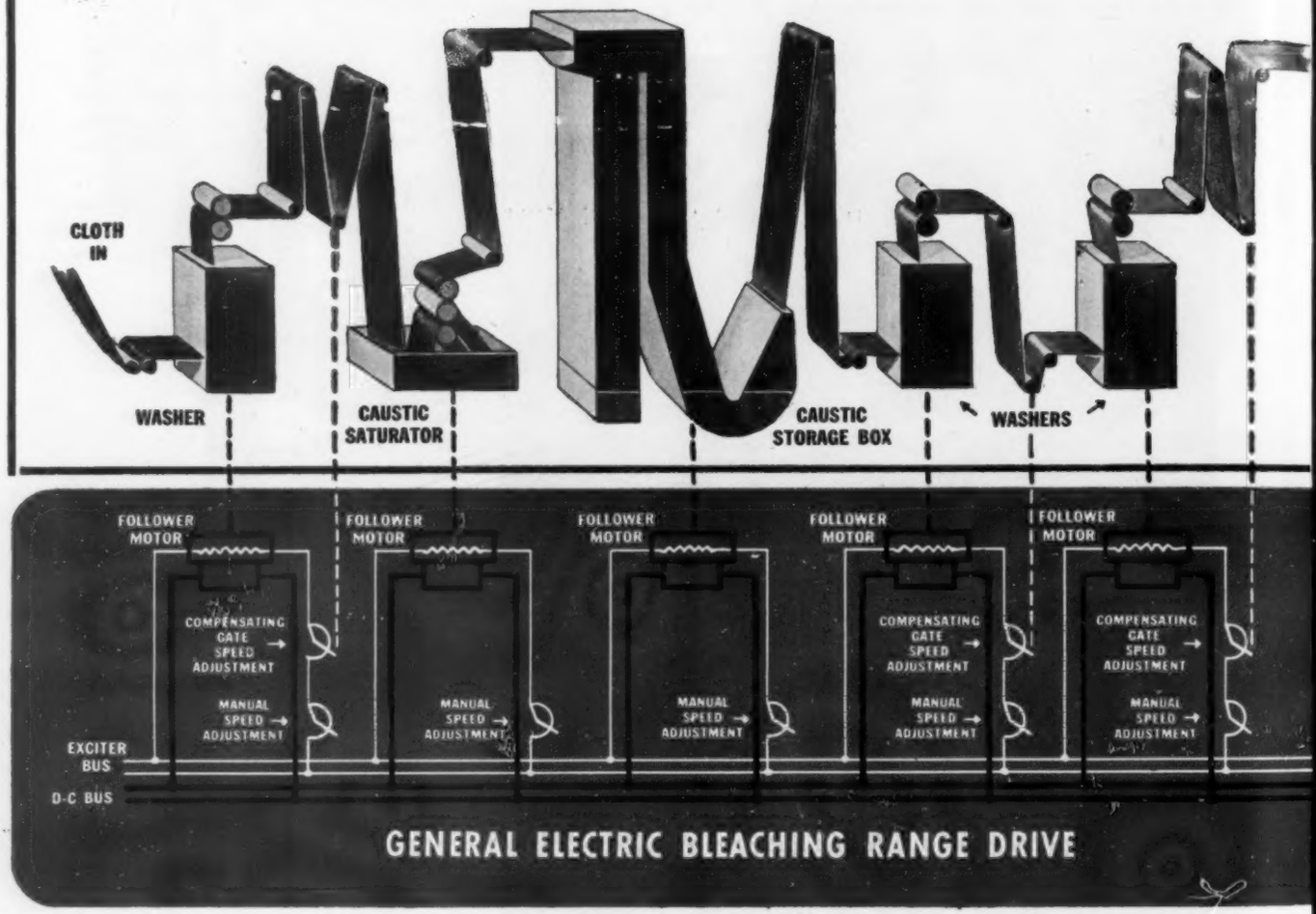
Southern Office: Johnston Building, Charlotte, N. C.; Canadian Representative: Ross Whitehead & Co., Ltd., University Tower Bldg., 660 Ste. Catherine St. West, Montreal, Quebec; European Representative: Muschamp Taylor Ltd. Manchester, England



FOSTER MODEL 75

For Winding Cotton Thread Yarns and Filament Yarns of All Types

BLEACHING SPEEDS



GENERAL ELECTRIC BLEACHING RANGE DRIVE

When mills switch from the kier method of bleaching to an electrified continuous range, bleaching speeds can be boosted as high as 275 ypm — quality control is simplified — finishing costs come down!

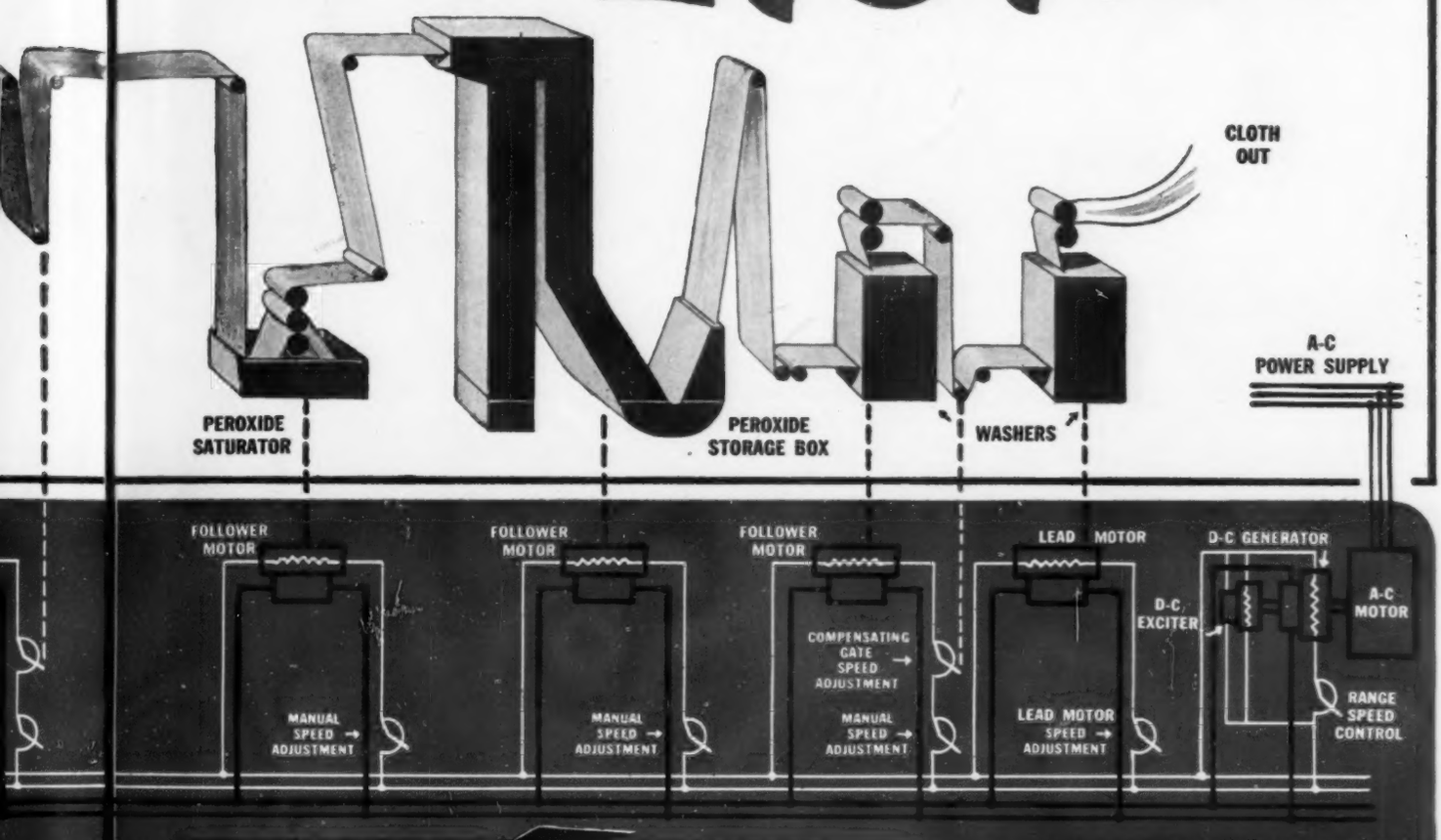
About 15 years ago, it became evident that the kier or batch method of bleaching could not be speeded up enough to meet the demands of modern high-speed textile finishing. The cost of handling cloth in batches was too high. Quality standards were difficult to maintain and serious limitations were placed on a bleaching department's capacity.

The answer was found in today's electrically-driven, high-speed continuous bleaching ranges. By handling cloth in one continuous length, "in-between" losses have been eliminated completely. Quality is high since each length of cloth receives identical treatment. Individual units in the range can be operated at maximum capacity; thus bleaching-department output is higher and finishing costs less.

For most range applications a G-E adjustable-voltage d-c drive as shown in the above diagram is most satisfactory. For applications where special conditions prevail, G.E. can supply other types of drives such as constant-voltage d-c, adjustable-speed a-c, and turbine-electric d-c.

Simple yet inexpensive, control of fabric tension or speed is accomplished with compensating gates, soft motors, or other co-ordinating devices such as photoelectric loops, speed regulators and current (tension) regulators. For full data on these drives, write for Bulletin GEA-5010. *Apparatus Dept., General Electric Company, Schenectady 5, New York.*

UP TO 275 YPM!



The essential equipment . . . AND WHAT IT DOES

G-E electric drives permit compact arrangement of textile finishing range equipment.

The diagram above shows symbolically a G-E adjustable-voltage d-c range drive with a compensating gate co-ordinating system. A single motor-generator set energizes a common d-c circuit which supplies armature voltage to all the range motors. The voltage of this circuit (and thus the speeds of the connected motors) is adjusted by a common generator-field rheostat. Excitation for the generator and the range motors is supplied from a common constant-voltage exciter. Close tension or speed control between units (where needed) is obtained through shunt-field control of the individual motors by the compensating gate rheostats.

DRIVE SYSTEMS FOR TEXTILE MILLS

GENERAL ELECTRIC

661-28

AN *Open Letter* TO THE WOOLEN INDUSTRY ABOUT *Proxol*

THE PROCTER & GAMBLE COMPANY
Executive Offices
CINCINNATI, 1, OHIO, U.S.A.

THE WOOLEN INDUSTRY
U. S. A.

Gentlemen:

As one of America's leading manufacturers of textile detergents, Procter & Gamble has acquired an intimate knowledge of wool processing problems. Our prime interest, of course, has been with processes involving detergents. However, since every step in wool manufacture is affected by preceding steps we have, of necessity, become familiar with all stages of wool processing.

Time and time again our technical men have run into problems caused by the unsatisfactory performance of wool oils. Such oils not only produced plenty of processing headaches but also detracted from the saleability of the finished goods. The most common shortcomings of these oils were:

Unstable emulsions
Uneven spreading properties
Failure to emulsify in hard or cold water
Poor static conduction, causing excess fly
Gummed-up or rusted card clothing
Damaged aprons and tapes
Inadequate lubrication and drag, causing more breaks and less production
Tendency to oxidize, causing discoloration, poor scouring and bleaching, uneven dyeing
Tendency to develop undesirable odors in the finished cloth
Excessive soap and detergent usage

Careful analysis of the weaknesses inherent in many existing wool oils led to the Company's decision to develop an oil with all the carding, spinning, and scouring characteristics demanded by woolen mills.

Today - after more than five years of laboratory work and plant usage - that oil, PROXOL, is a reality. Proxol offers the wool processor many unique advantages. We urge you to prove this to your own satisfaction with a thorough trial of Proxol.

Sincerely,
Procter & Gamble

P.S. Proxol is made by the makers of Olate, the universal textile soap.

What is Proxol?

Proxol is a clear wool oil of exceptionally uniform quality, with a Saybolt Universal Viscosity of 450 seconds. Pour point less than 20°F. Self-emulsifiable. Emulsions are unusually stable and have extremely small particle size, assuring fast, even penetration and spreading. Excellent lubricating properties assure smooth, uniform card ropings. Anti-static — produces less than normal waste. Non-corrosive . . . assures longer life for card clothing . . . reduces stripping . . . helps produce stronger, more uniform yarns, better fabrics. Proxol means fewer ends down . . . more yarn per operator. Unusually resistant to oxidation. Proxols scours easily, assuring uniform bleaching, level dyeing . . . *with 40% to 75% reductions in normal soap and detergent usage.*

SANDOZ PRESENTS *The color achievement of the month*

Light On The Subject BY GOODALL FABRICS, INC.

These fabrics — upholstery and drapery — are representative of the fine ideas in color, design and texture coming from the looms of Goodall-Sanford, Inc.

Imagine the "lift" a room gets from these luminous yellows and soft greens — summertime colors for year-round living rooms.

Helping Goodall to put its color ideas into cloth are the facilities of Sandoz — whose dyestuff research chemists bend their efforts continually to keep up, technically, with the inspirations of its customers' designers . . . as well as the demands of production men for highest possible efficiency in the dyeing operation.

Among Sandoz' "color achievements" are such wool color specialties as the following — which offer the maximum in color fastness for drapery and upholstery materials and clothing: **AZO RUBINOL 3GP . . . XYLENE FAST YELLOW 2GP . . . ALIZARINE LIGHT BLUE 4GL . . . ALIZARINE LIGHT BLUE 5GL . . . ALIZARINE LIGHT BROWN BL . . . BRILLIANT ALIZARINE MILLING BLUE BL . . . BRILLIANT ALIZARINE MILLING BLUE G . . . BRILLIANT ALIZARINE MILLING BLUE SL.**

For acid, chrome or direct dyes . . . or auxiliary chemicals . . . for both natural and synthetic fibres . . . be guided by the successful "color achievements" you see in these Sandoz advertisements.

SANDOZ CHEMICAL WORKS, INC., 61 VAN DAM STREET, NEW YORK 13, N. Y.

Application laboratories and stocks at Boston, Philadelphia, Charlotte, Los Angeles, Toronto. • Other branches at Providence, Paterson, Chicago.

SANDOZ *thinks ahead with textiles*

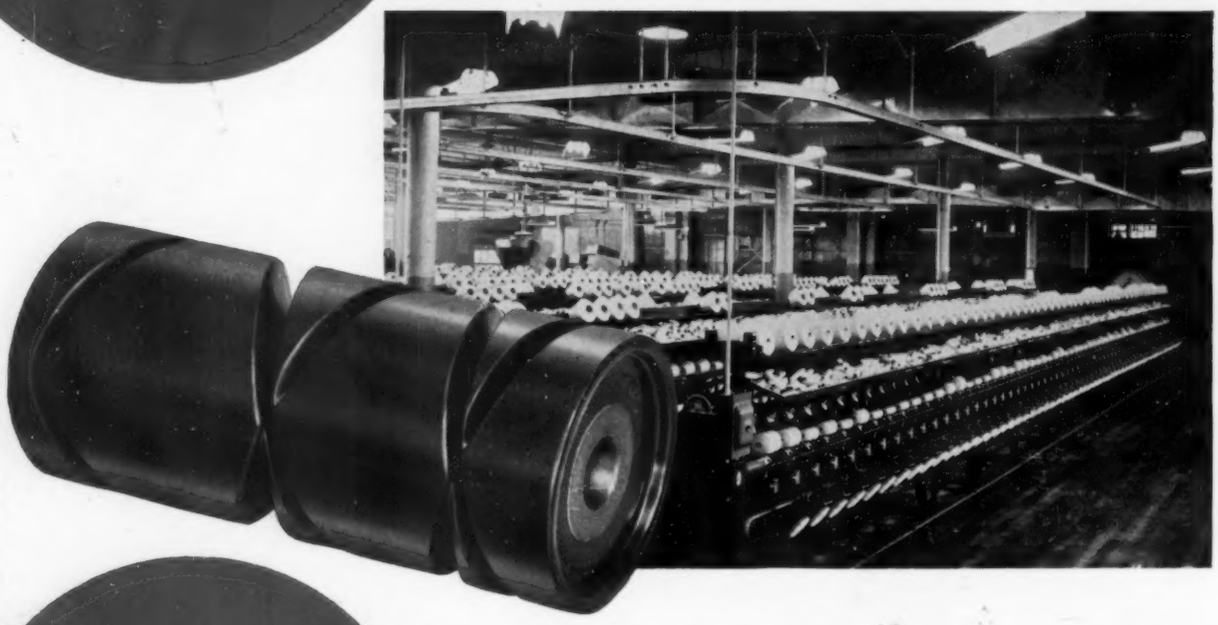
SANDOZ

IN THE
Winding
Room
AT WEST BOYLSTON

*It's Roto-Coners**

This is one section of the winding room at the Boylston, Alabama mill of West Boylston Manufacturing Company of Alabama. The machines are Roto-Coners*, the winding machines for cotton yarn† which are now being selected *in the majority of cases* for new installations and replacement of old winding equipment.

†And in slightly different form for wool and worsted, spun rayon



IN
Roto-
Coners*

It's the Rotary Traverse

This is the rotary traverse, the exclusive one-piece combination driving drum and traverse guide. It is the major reason why the Roto-Coner* can be operated at speeds up to 550 ypm regardless of yarn count, and at a cost for maintenance of less than ½ of 1% on investment. It is also the reason why packages wound on the Roto-Coner* – uniform in shape and density, free from roll-cuts and underwinds, accurately inspected – are preferred for knitting, warping, dyeing, twisting.

*®

UNIVERSAL WINDING COMPANY

Providence, Boston, Philadelphia, Utica, Charlotte, Atlanta, Chicago,
Los Angeles; Montreal, Hamilton, Canada; Manchester,
England; Paris, France; Basle, Switzerland
Agents in every principal textile center throughout the world

ROTO-CONER* *the only machine with the rotary traverse*

new rayon twisters get the right start for a long life

when the
Gulf Lubrication Engineer
is "in the picture"

The Foreman of this modern rayon throwing mill (right) consults with a Gulf Lubrication Engineer on the lubrication of these recently installed "down twisters" of latest design.

HIGH-SPEED PRODUCTION of strong uniform yarns—that's what modern machines like this are built for!

And they'll deliver top performance indefinitely when lubrication is efficient. Accurately finished parts fitted with close tolerances must have the protection of the best lubrication to insure precision work and continuous operation.

When you bring the Gulf Lubrication Engineer into the picture in your mill, you enlist the cooperative service of a man whose broad experience and knowledge can be a real help to you in maintaining efficient production from every machine you operate.

He will recommend the lubricants and application methods exactly suited to your equipment and operating conditions. Then, periodically he will check the performance of each machine and suggest any changes in lubrication practice that are necessary to provide for new operating conditions.

This kind of lubrication service has a real dollar and cents value to you. Write, wire, or phone your nearest Gulf office today and ask a Gulf Lubrication Engineer to call.

GULF OIL CORPORATION · GULF REFINING COMPANY

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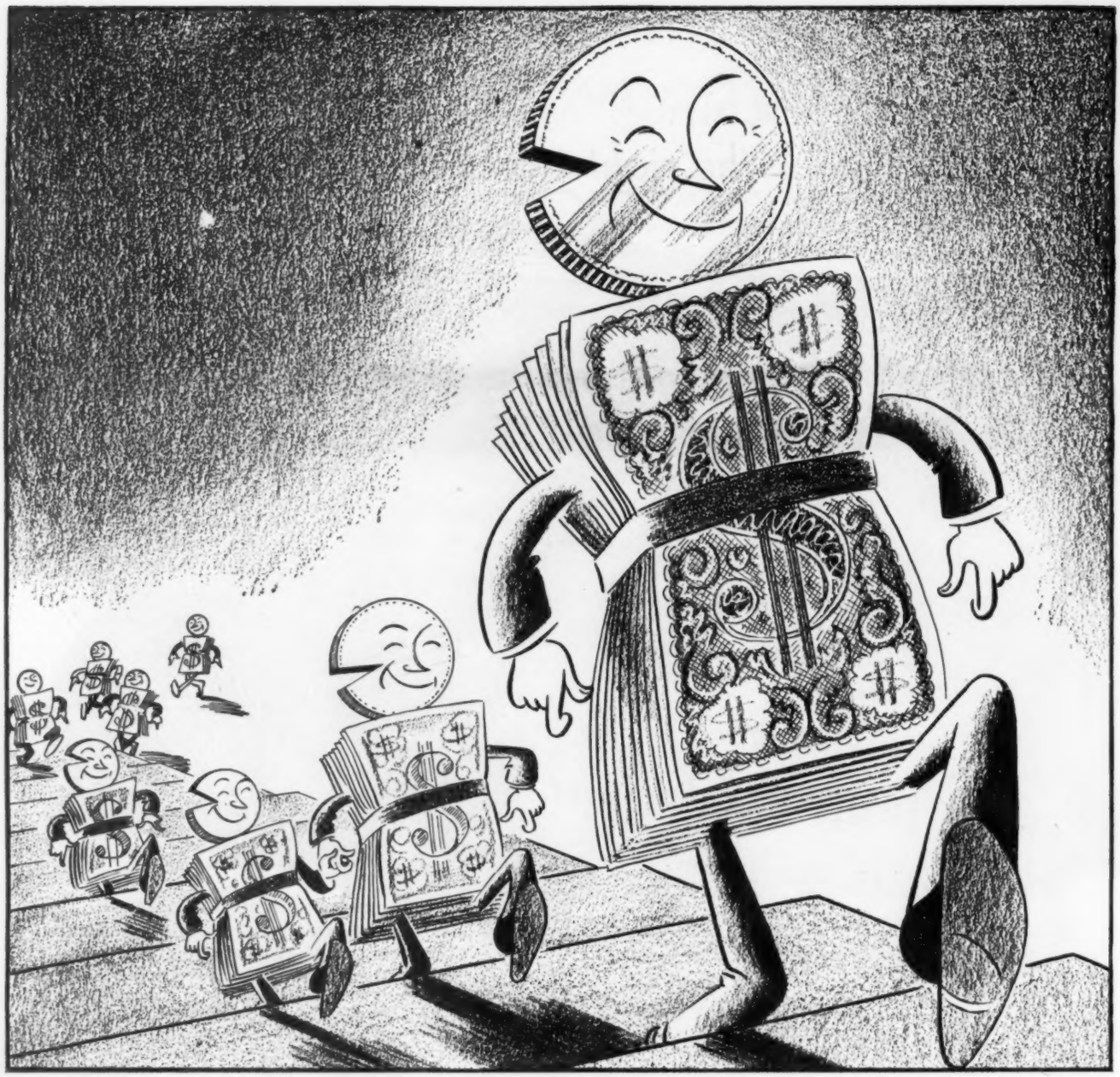
GULF INDUSTRIAL LUBRICATION



Small Steps are Easy

When You Earmark a Tangible Cash Fund for Loom-Replacement

As new looms become available, mills can take the necessary steps toward meeting weaveroom modernization needs . . . if a systematic loom-replacement program has been worked out *without a blind spot* . . . and if that program has been implemented by an actual, *earmarked* cash fund.

That *blind spot* may be just this: Loom depreciation has *not* been figured accurately unless liberal allowance has been made not only for postwar depreciation . . . *but also for the full duration and stepped-up rate of wartime depreciation.* Then you can figure what percentage of your prewar looms should be replaced annually . . . at least 10% of your least efficient looms, but probably more.

In fact, it's good business to figure considerably more than 10%, for the sooner you can comfortably complete your weaveroom modernization, the quicker and greater will be the return on your investment in the new Crompton & Knowles Looms which give you so much higher production, at lower cost, of better-quality fabrics. Is *your* loom-replacement fund set up . . . and operating?

Crompton & Knowles Loom Works

WORCESTER 1, MASSACHUSETTS, U. S. A.

PHILADELPHIA, PA. • CHARLOTTE, N. C. • ALLENTOWN, PA.

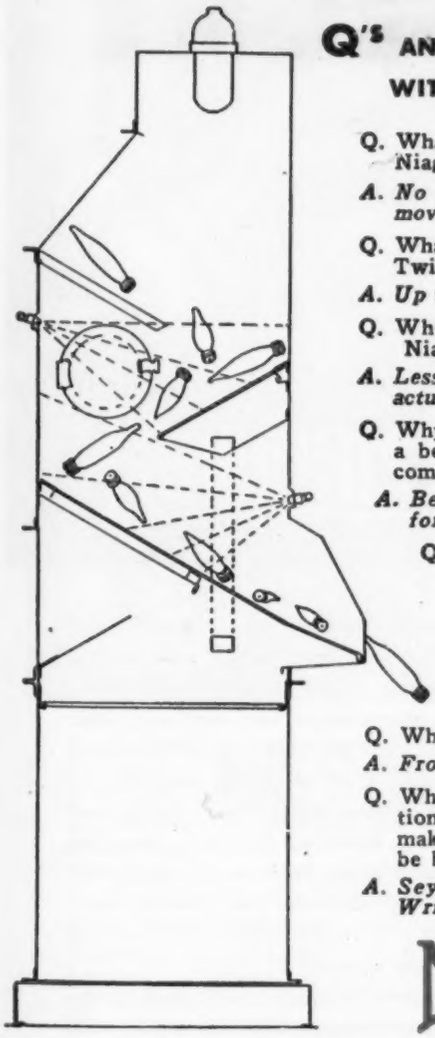
C&K

CROMPTON & KNOWLES JACQUARD & SUPPLY CO., PAWTUCKET, R. I.

A REVOLUTIONARY NEW PRINCIPLE FOR CONDITIONING YARN

The Niagara Twist-Setter employs an entirely new principle of design to achieve highest production at lowest cost. Yarn is sprayed from all sides affording maximum uniformity. There are no moving parts—average maintenance is less than $5.00 per year. Used by many leading mills. Write today for detailed information.

NO MOVING PARTS



Q's AND A's ON CONDITIONING YARN WITH A NIAGARA TWIST-SETTER

Q. What is the outstanding feature of the Niagara Twist-Setter?

A. No apron to replace periodically. No moving parts except a pump.

Q. What is the capacity of a Niagara Twist-Setter?

A. Up to 3,000 lbs. per hour.

Q. What is the maintenance cost of a Niagara Twist-Setter?

A. Less than $5.00 per machine per year by actual records over 4 year period.

Q. Why does the Niagara Twist-Setter do a better job of setting the twist than competitive machines?

A. Because the Niagara gives a more uniform wetting of the bobbins.

Q. What feeding devices are available?

A. Several designs to suit individual mill requirements.

Q. What priorities, etc. are needed?

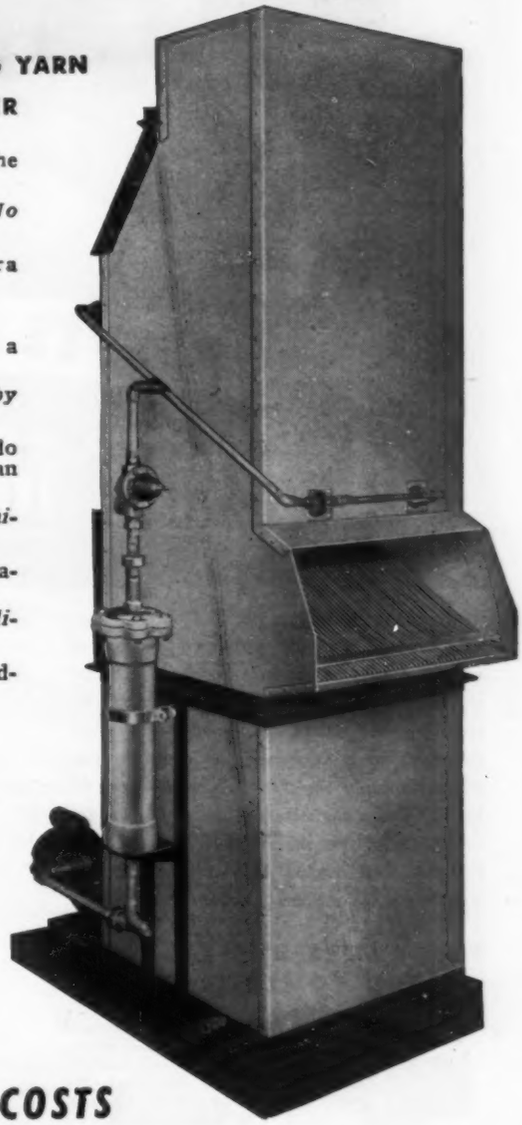
A. None.

Q. What delivery can be expected?

A. From three to six weeks.

Q. Where can the best yarn conditioning penetrants for use in any make yarn conditioning machine be bought?

A. Seydel-Woolley & Company — Write today for particulars.



NIAGARA TWIST-SETTER
TRADE MARK

CUTS YOUR CONDITIONING COSTS

SEYDEL-WOOLLEY & CO.

TEXTILE CHEMICALS

748 RICE STREET • ATLANTA, GA.

SEYCO

PENETRANTS • SIZING • SHUTTLE DRESSING • SOFTENERS • ALKALIS • TWIST SETTER MACHINES •

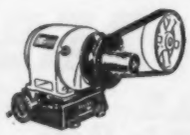
REEVES reduces waste of Time! Material! Manpower!

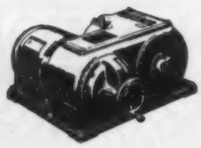
This hydraulic quetsch provides selection of correct pressures for the new resin, TBL and similar finishes for every type of fabric. By means of the REEVES Motodrive with which the machine is equipped, an operator can obtain instantly any desired speed—from 40 to 120 yards per minute—to compensate for variations in the weight and fibre of cloth handled. The quetsch is a product of John Verduin Machine Corp., Paterson, N.J.

THE THREE BASIC REEVES SPEED CONTROL UNITS

VARIABLE SPEED TRANSMISSION for providing infinite, accurate speed flexibility over a wide range—2:1 to 16:1. Sizes—fractional to 87 hp.

VARI-SPEED MOTOR PULLEY provides an instantly variable speed drive within 4:1 ratio for any constant speed motor. Sizes to 15 hp.





MOTODRIVE combines motor, speed varying mechanism and reduction gears in single compact unit. Speed variations 2:1 to 6:1 inclusive. Sizes to 15 hp.

● Install REEVES Variable Speed Drives on your machines and you'll see results, not next month, not next week—but *immediately.* REEVES Speed Control *instantly* and *accurately* compensates for every change in texture, weight, temperature, moisture and other variable factors . . . provides exactly the right speed for every operation and every operator, *under every changing condition* . . . cuts your costs by reducing waste of time, material and manpower.

Applicable to beamers, warpers, slashers, dry cans, mangles, dryers, nappers, range finishers and many other textile machines, the three basic REEVES Speed Control units are available in a wide range of designs, sizes, capacities and speed ratios—with manual, push-button or completely automatic control.

A REEVES engineer thoroughly familiar with textile mill operations will be glad to work with you and recommend the units which best suit your particular needs. Write today, and ask for a copy of the comprehensive, 114-page catalog T8-450A.

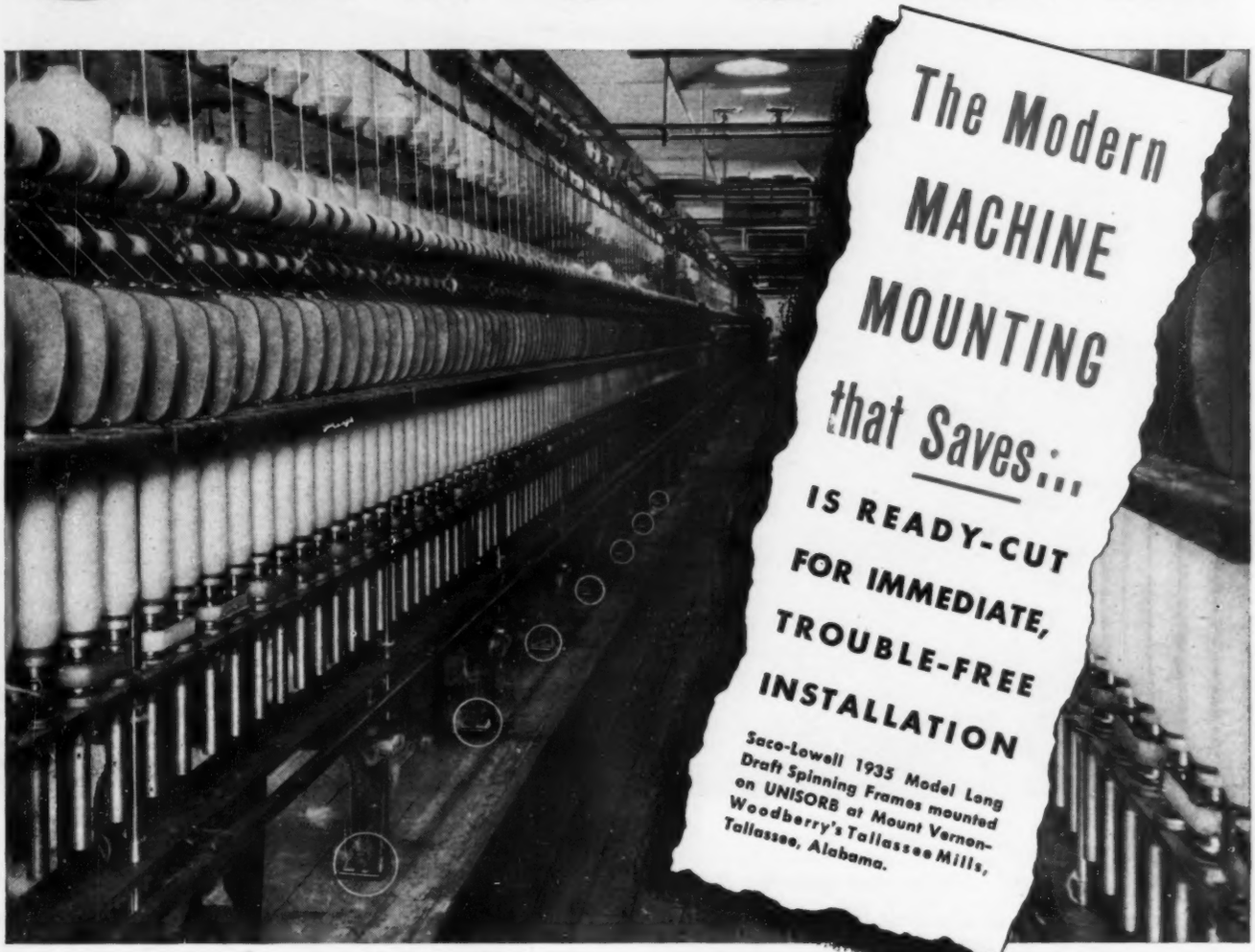
REEVES PULLEY COMPANY • COLUMBUS, INDIANA

ACCURATE • VARIABLE

Reeves Speed Control

GIVES THE RIGHT SPEED FOR EVERY JOB!

UNISORB



For anchoring preparatory machinery, looms and finishing machinery, the textile industry has taken UNISORB-Mounting straight to its heart.

Convenience, or *service*, is probably one of the more important reasons.

When you've decided to "Mount it on UNISORB" —the modern anchoring that saves *all-ways*—all you need send us is the type of machine to be UNISORB-Mounted . . . how many . . . who made it . . . serial number . . . model number. Then it's up to us, and the tedious details are out of your hands.

You'll get delivery that really is *immediate.* Your UNISORB pads will be ready for immediate installation upon receipt. No trouble, no messy cutting or trimming.

And when you install machines on UNISORB . . . the *only* truly modern, up-to-date way . . . you know that means no bolts, no lag screws, no destructive floor-drilling. You know, moreover, it's the anchoring that absorbs from 60% to 85% of transmitted vibration and noise, which means a big saving to you in building and machine repair, replacement and maintenance.

And by reducing noise, UNISORB-Mounting decreases worker fatigue, promotes better work and greater production.

UNISORB can be used on any type of flooring with practically every type of machinery and equipment.

LOOK FOR THE RED CENTER AND UNISORB BRAND MARK

THE FELTERS COMPANY

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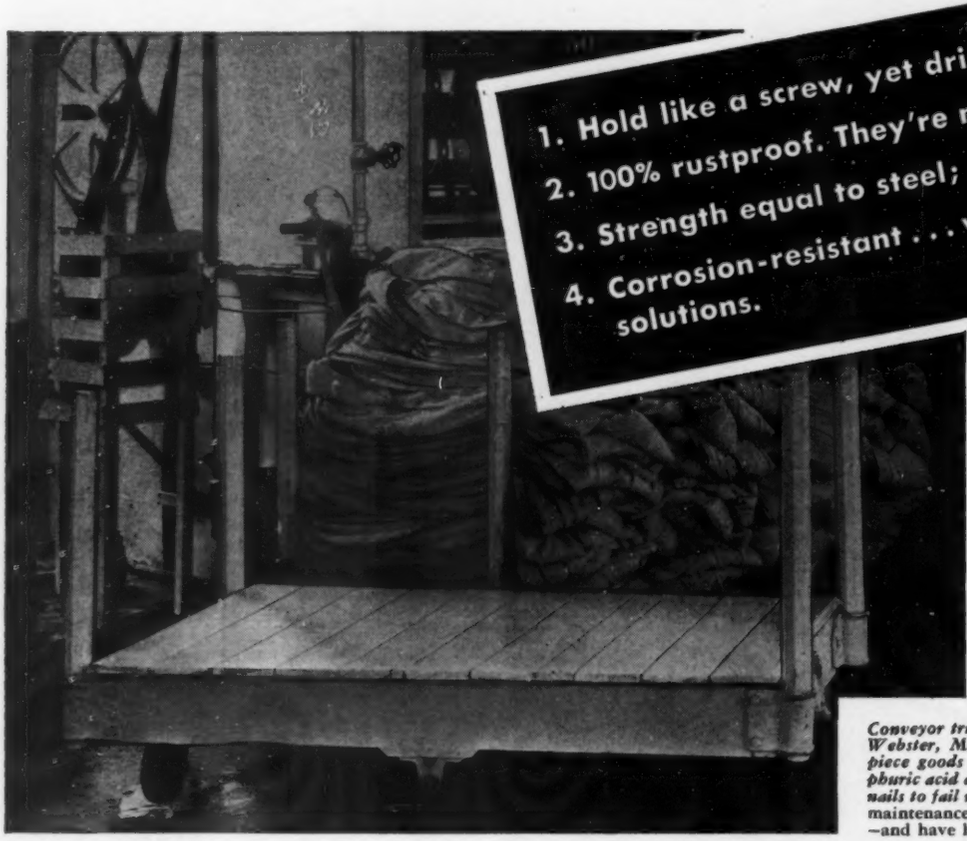
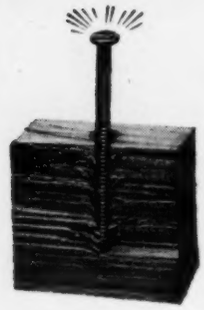
You get 4-Way Protection PLUS Economy with

ANCHORFAST NAILS


1. Hold like a screw, yet drive like a nail.
2. 100% rustproof. They're made of MONEL.
3. Strength equal to steel; extra stiffness.
4. Corrosion-resistant . . . won't contaminate solutions.



Conveyor trucks in service at Packard Mills, Inc., of Webster, Mass. These trucks are used to transport piece goods from scouring room to dye house. Sulphuric acid drippings from the goods caused ordinary nails to fail rapidly in this application. Packard Mills maintenance men switched to 2" Anchorfast Nails —and have had no further corrosion troubles!

With *Anchorfast*† *Nails,* you get the holding power of a screw at the cost of a nail. You may eliminate hole-drilling and setting compounds. AND you get outstanding protection from rust and corrosion.

These are the features that make *Anchorfast Nails* favored fastenings among textile processors.

Because they're made of rustproof, corrosion-resistant MONEL*, *Anchorfast Nails can't* rust or harmfully contaminate solutions.

Their extra stiffness means less spoilage under the hammer. Still another valuable feature . . . the special annular grooves around the shank of *Anchorfast Nails* prevent "pulling out" caused by alternate swelling and shrinking of the wood. This makes it possible to use *Anchorfasts* in conditions of sharply varying humidity where ordinary nails would fail.

Leading fabric processing plants use *Anchorfast Nails* as fastenings for vats, tubs, ducts, floors, ceilings, conveyor trucks — wherever adverse conditions of stress, humidity, and chemical corrosion must be defeated.

Anchorfast Nails may be the answer to many of *your* fastening problems, too. Why not investigate their unusual advantages today? Write for FREE testing device and list of distributors.

*Reg. U.S. Pat. Off. International Nickel Co.
†Reg. U.S. Pat. Off. Independent Nail & Packing Co.

Monel... for lower maintenance

EMBLEM OF SERVICE
INCO
TRADE MARK

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.

NOPCO PRESENTS

UNISIZE

AMAZING NEW 6-IN-1 SIZE
FOR ACETATE AND VISCOSE RAYON WARPS

1 Product *6 Functions*

As a
1 Binder
2 Softener
3 Penetrant
4 Lubricant
5 Humectant
6 Defoamer

EASY TO USE—JUST MIX WITH WATER

"UNISIZE" is a *complete*, one-product size for Acetate and Viscose Rayon warps of all constructions . . . its unique, balanced properties provide advantages far surpassing those of conventional warp sizing compounds . . . its *simplicity, effectiveness* and *economy* have won unanimous and enthusiastic approval from users.

WHAT "UNISIZE" IS

"UNISIZE" is *chemically* a synthetic, proteinized, water-soluble polymer; *physically* a light tan free-flowing granulation—a single, *one-product* size which performs *six* essential sizing functions.

ADVANTAGES OF "UNISIZE"

SIMPLE, READY TO USE you waste no time predissolving raw materials . . . you need no complicated formulas. "UNISIZE"—a *model of simplicity*—affords the big advantage of a *single* product replacing the many complex mixes of the past. *Extremely soluble,* "UNISIZE" dissolves quickly and completely without gelling or lumping.

CLEAR-CUT FORMULATION you simply weigh the required amount of "UNISIZE" . . . 25 lbs. for Viscose warp, 50 lbs. for Acetate . . . and add it to 100 gallons of water heated to 180° F. Then, stir slowly for 8 minutes—run in quetch at 150° F.

EVEN DISTRIBUTION ON WARP in the quetch, there's no foaming, scumming or separation to prevent even distribution of the size on your warp. The warp comes off the last can without sandy hand—*smooth* and *firm.*

SUPERIOR BOND, FLEXIBLE FILM creating a *strong* bond, forming a *flexible, non-tacky* film, "UNISIZE" gives you maximum filament protection . . . eliminates taping . . . prevents sticking on drying cans.

ANTISTATIC PROPERTIES by preventing static during the *slashing* operation, "UNISIZE" eliminates banding. These same properties also reduce static during *weaving.*

UNIFORM SIZING "UNISIZE" will give you uniform sizing, warp after warp . . . the result of Nopco's rigid control through every step of its manufacture.

EASE OF BOIL-OFF "UNISIZE" scours out readily during normal boil-off procedure. No enzymes are required.

FINALLY, "UNISIZE" GIVES YOU FINER WARPS with smoother ends . . . *better* conditioned for *better* weaving. ECONOMICAL SIZING . . . on a performance basis, "UNISIZE" costs you far less than conventional sizing treatments . . . you'll save in both time and labor.

"UNISIZE" will solve your sizing problems. Send for a working sample today, or ask to have a Nopco representative run a trial in your mill soon. Write to:

NOPCO CHEMICAL COMPANY
2301 Essex St., Harrison, N. J.
(formerly National Oil Products Company)
Branches: BOSTON • CHICAGO • CEDARTOWN, GA. • RICHMOND, CALIF.

UNISIZE

6-IN-1 WARP SIZE
FOR VISCOSE AND ACETATE

NOPCO EVOLVED THROUGH RESEARCH

H & B

H & B Twisters, built exactly to exact specifications, assure high quality finished yarn with an even twist. They deliver a well shaped, firm bobbin carrying the maximum yardage permissible within the natural limits imposed by traverse and ring diameter. Whether this twisted yarn is used for duck, high quality broadcloths, gabardines, tire cord or sewing thread, you can depend on H & B. Our engineering provides the right builder motion for trouble-free run-off on any type high speed winder, or in any other subsequent operation.

Additional features of H & B Twisters contribute to the quality of the twisted yarn and to the safety, ease and economy of operation of the machine. These are "the little things that make a big difference".

H & B AMERICAN

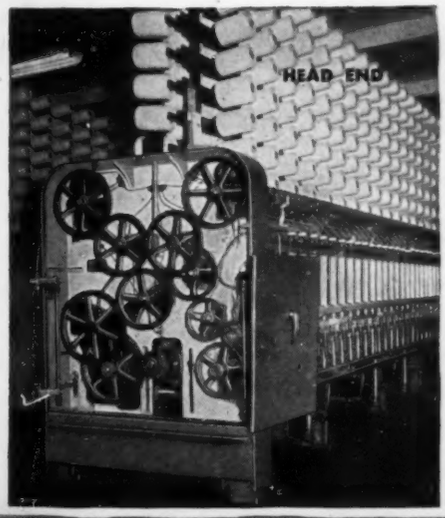
Builders of Modern

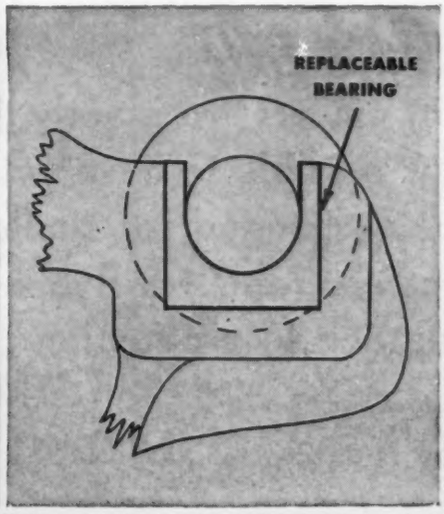
FACTORY, EXECUTIVE OFFICES AND EXPORT

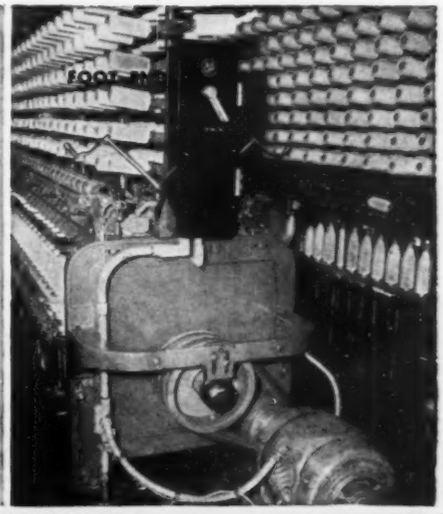
TWISTERS

IT'S THE LITTLE THINGS *that make a Big Difference*

1. A new type metallic traversing thread board that helps assure even yarn tension.
2. An anti-friction tension pulley that helps to maintain constant spindle speed.
3. Wet twisters are equipped with an automatic water feed control that keeps the same level in troughs, thus permitting even water penetration.
4. A ball bearing thrust washer in the builder drive that prevents dwelling at top and bottom of the stroke and particularly aids effective high speed winding.
5. An electric stop motion that prevents starting of machine when doors are open.
6. A silent chain drive from cylinder to jack shaft.
7. Replaceable bottom roll bearings to reduce maintenance cost.
8. Anti-friction bearings on cylinders that save power and maintenance.







MACHINE CO.

Textile Machinery

DIVISION PAWTUCKET, RHODE ISLAND, U.S.A.

BRANCH OFFICES
ATLANTA, GA.
815 CITIZENS AND SOUTHERN NATIONAL BANK BUILDING
CHARLOTTE, N. C.
1201 JOHNSTON BUILDING

PICKER REPAIR PARTS
For IMMEDIATE DELIVERY

We manufacture and keep on hand for immediate delivery a complete stock of repair parts for Kitson pickers. We can also furnish many parts, such as screens, ball bearings, aprons, and beaters, for other pickers.

In an emergency, a telephone call or telegram can have the needed repair parts at your plant the day after the order is placed.

Aldrich rebuilt pickers are exactly like new machines, and where it is not feasible to have your own pickers rebuilt, these can be exchanged for similar sections in our warehouse which can be rebuilt for you and installed with little or no interruption to production.

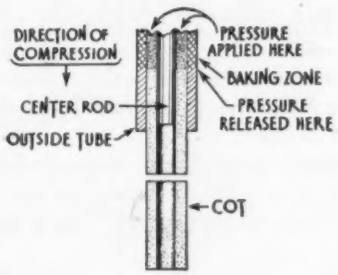
AldricH MachinE
Greenwood **WorkS** South Carolina

Armstrong's Cork Cots

DRAFT UNIFORMLY—WON'T SLICK

EXTRUSION PROCESS PRODUCES

SEAMLESS CORK COTS



Armstrong's Extruded Cork Cots have no structural weakness to cause premature breakdown. Each cot is uniform in density from inside to outside, from end to end. Each compresses evenly, spins stronger yarn, lasts longer.

The seamless surface of Armstrong's Cork Cots grips the yarn evenly. This surface won't slick up because cork, with its many-sided cells, keeps its high frictional properties over long service periods. Thus you consistently get uniform drafting and top-quality yarn.

Cork's high coefficient of friction eliminates eyebrowing, too. Armstrong's Cork Cots reduce clearer waste as much as 50%—and place waste well back on the clearer boards. This means cleaner work, less clearer picking.

Armstrong's Cork Cots are also exceptionally resilient. They recover quickly from most laps or hard ends. They give you fewer ends down per thousand spindle hours, so your operators do less piecing up. They won't flow under roll weighting.

Low in first cost, Armstrong's Cork Cots have a long initial service life. When they do show wear, they can be rebuffed for 3 or 4 extra service lives.

Ask your Armstrong representative for samples, prices, and complete information. Or write today to Armstrong Cork Company, Textile Products Dept., 3608 Arch St., Lancaster, Pa.

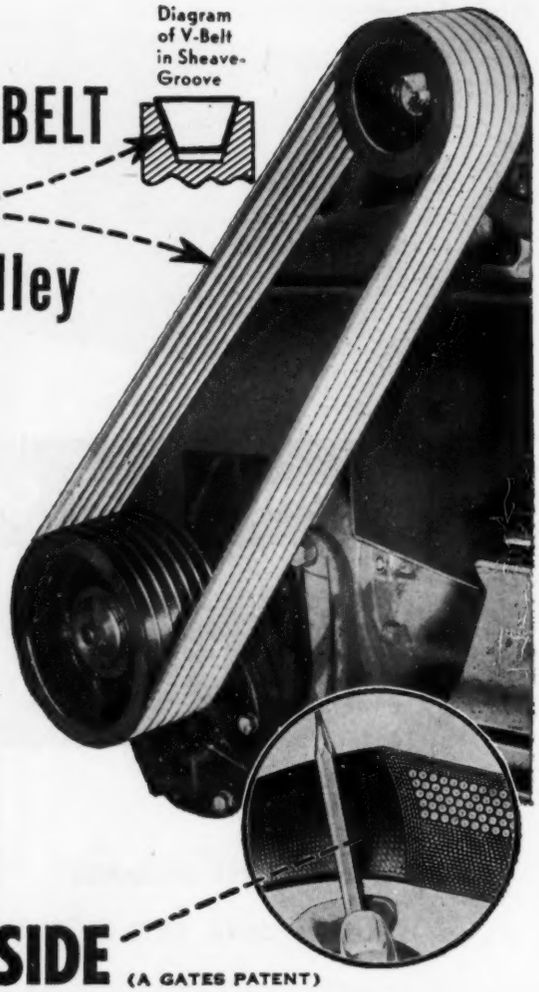
ACCOTEX IS A REGISTERED TRADE-MARK.

Better running work . . . more poundage

ARMSTRONG'S CORK COTS

ACCOTEX COTS • ACCOTEX APRONS

The SIDE of a V-BELT is what GRIPS the pulley



Naturally, it GETS the WEAR!

Any one familiar with V-Belt drives knows that the sides of a V-Belt are what really get the wear.

It's the *sides* that grip the pulley. They *pick up* all the power from the driver pulley, *transmit* that power to the belt as a whole and then, once more, they *deliver* the power to the driven pulley. And, clearly, it's the *sides*—and *only* the sides—that take the wear against the sheave-groove wall.

That is why you have always noticed that the *sidewall* of the *ordinary* V-Belt is the part that *wears out first*—and, naturally, if you prolong the life of the sidewall, you *lengthen* the *life* of the *belt!*

Now See How the CONCAVE SIDE (A GATES PATENT) SAVES Sidewall Wear and Lengthens Belt Life!

Fig. 1
Straight Sided V-Belt
Fig. 1-A
How Straight Sided V-Belt Bulges When Bending Around Its Pulley
You can actually feel the bulging of a straight-sided V-Belt by holding the sides between your finger and thumb and then bending the belt. Naturally, this bulging produces excessive wear along the middle of the sidewall as indicated by arrows.
Fig. 2
Gates V-Belt with Patented Concave Sidewall
Fig. 2-A
Showing How Concave Side of Gates V-Belt Straightens to Make Perfect Fit in Sheave Groove When Belt Is Bending Over Pulley
No bulging against the sides of the sheave groove means that sidewall wear is evenly distributed over the full width of the sidewall—and that means much longer life for the belt!

The simple diagrams on the left show exactly why the ordinary, straight-sided V-Belt gets excessive wear along the *middle* of the sides. The diagrams show also why the Patented Concave Side greatly *lengthens the life* of the *sidewalls* of Gates Vulco Ropes. That is the simple reason why your Gates Vulco Ropes are giving you so much longer service than any straight-sided V-Belt can possibly give.

Saving SIDEWALL WEAR is more important NOW than ever before. ..

Now that Gates *SPECIALIZED* Research has resulted in Super Vulco Ropes capable of carrying much heavier loads—fully 40% higher horsepower ratings—the sidewall of the belt is called upon to do even more work in transmitting these heavier loads to the pulley. Naturally, with heavier loading on the sidewall, the life-prolonging Concave Side is more important now than ever before!

Gates
THE MARK OF SPECIALIZED RESEARCH

THE GATES RUBBER COMPANY *Denver, U. S. A.*
"The World's Largest Makers of V-Belts"

487

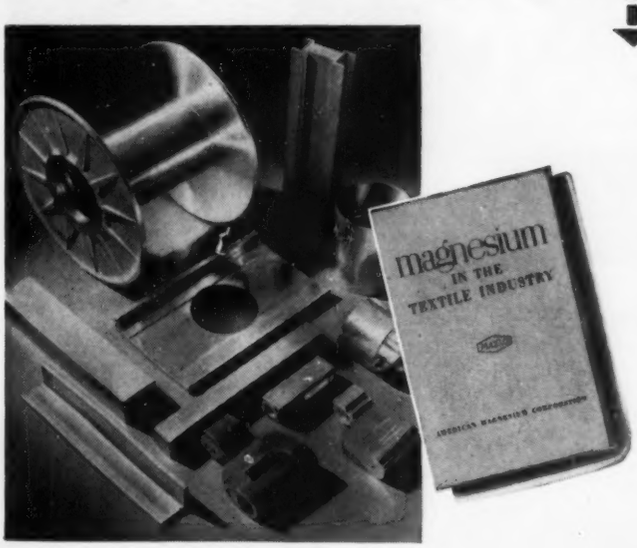
GATES VULCO ROPE DRIVES
Engineering Offices and Jobber Stocks **IN ALL INDUSTRIAL CENTERS** of the U. S. and 71 Foreign Countries

STOP

Just a little ice cube that stopped—suddenly—when it hit her on the head, was enough to knock a St. Louis girl unconscious, recently. The ice cube had fallen from a hotel room window.

START

A hitter uses more force to break toward first base than he does for any other step around the bases—because he has to use a lot of force overcoming his own inertia.



FREE! Get your free copy of "Magnesium in the Textile Industry" for full information on how American Magnesium can help you cut costs.

MORAL: It takes a lot of power to stop something that's moving fast, or start something that's stopped. In equipment as full of stops and starts as high-speed, reciprocating parts of textile machinery, you save a lot of wear—a lot of vibration—a lot of power—when those parts are American Magnesium. 35% lighter than aluminum, 75% lighter than steel, it saves power, cuts vibration, limits wear. Corrosion-resistant and non-warping. Ask your builder to specify it, wherever possible, for better performance. ALUMINUM COMPANY OF AMERICA, sales agent for American Magnesium products, 1704 Gulf Building, Pittsburgh, Pennsylvania. Sales offices in principal cities.

MAGNESIUM MAZLO Reg. U.S. Pat. Off. PRODUCTS

AMERICAN MAGNESIUM CORPORATION

SUBSIDIARY OF ALUMINUM COMPANY OF AMERICA

INVISIBLE SECURITY...

Results you can SEE!

Do you need *controlled humidity*...

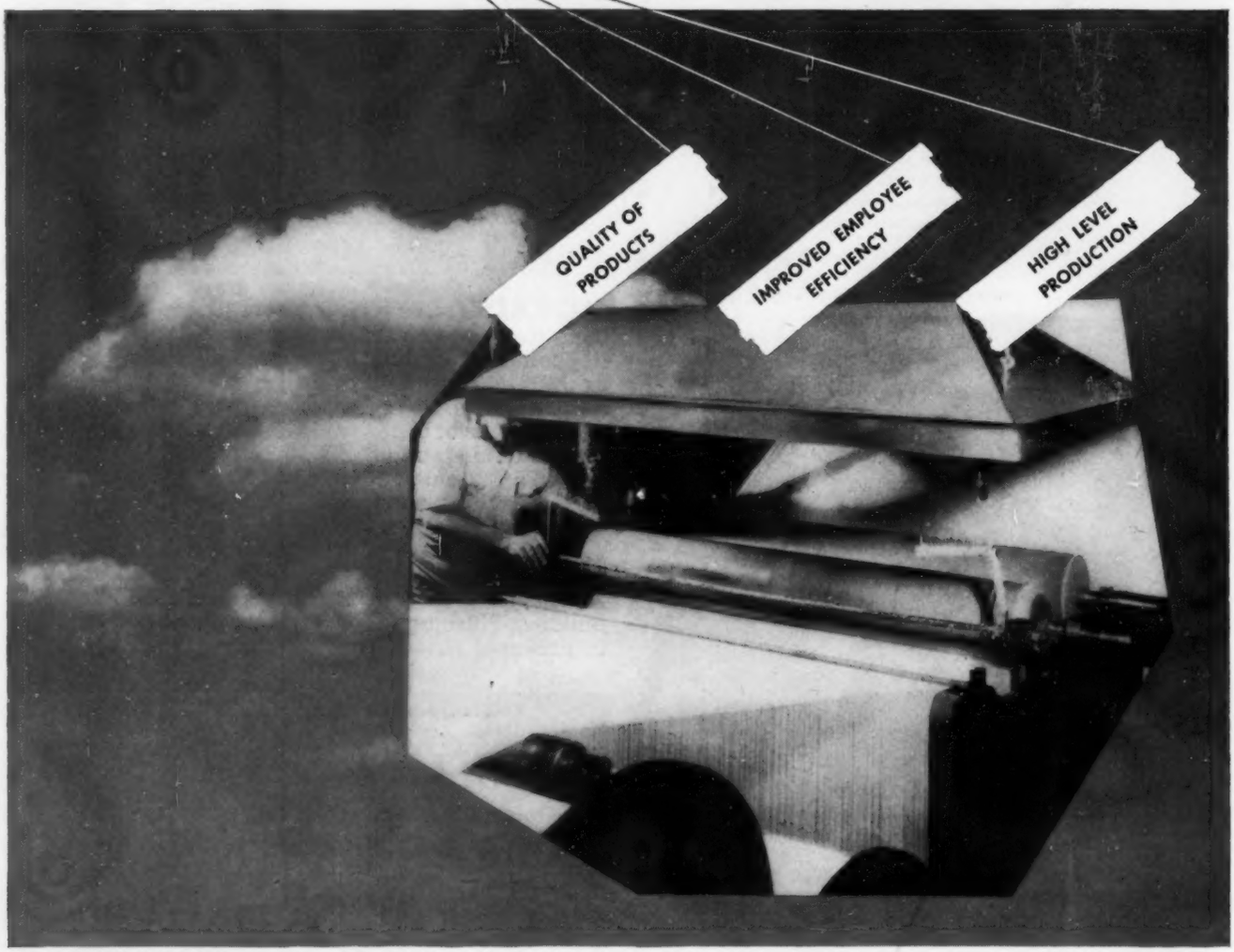
to improve quality of work?
to maintain uniformity?
to reduce static and fly?
to maintain plasticity of size?
to improve loom operations?
to hold filament strength and dimension?

and controlled temperature...

to maintain machine adjustments?
to hold machine tolerances?
to give uniformity in knitting operations?
for spot cooling in bleaching and finishing?
to provide employee comfort and health?

These benefits and many more are the visible and tangible results that air conditioning with York can bring to your mill operations. York central station systems will give you accurate control over temperature and humidity . . . operate at a minimum of cost and attention.

And, whatever your specific needs in air conditioning, there's a complete range of York equipment to meet them, and a York representative ready to talk textile installations. He is prepared to supply your plant engineer, consulting engineer and installing contractor with specific information as to equipment—its capacities and performance to fit your special needs. His accumulated data on air conditioning in your particular field will be helpful. York Corporation, York, Pennsylvania.



YORK *Refrigeration and Air Conditioning*

HEADQUARTERS FOR MECHANICAL COOLING SINCE 1885

Two P&H Hevi-Lift Hoists team up to carry rolls up the incline from finishing room to sheet tearing room.

For *NON-STOP* Production

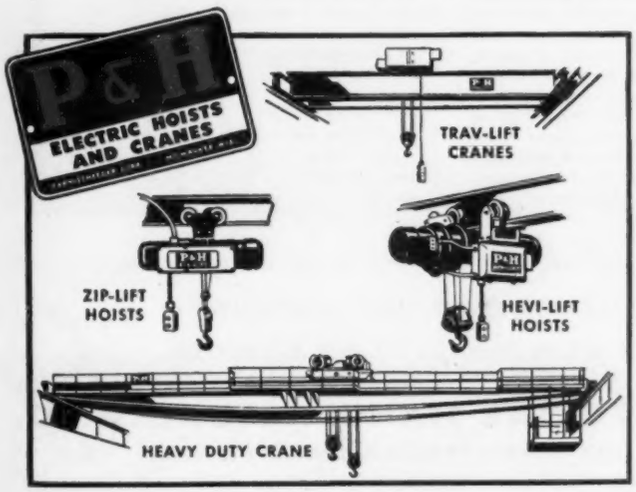
Move your textiles *"Thru-the-Air!"*

● No delays this way! Lifting or lowering at one point—as from station to station right through production—your goods move quickly, effortlessly — just by pressing buttons!

That's *"Thru-the-Air"* handling — via P&H Electric Hoists. Not only does this low cost handling put a stop to lags; it eliminates rehandling, makes the most of your floor space.

It's *clean* handling, too — adaptable to all textile operations.

Write to see how *"Thru-the-Air"* handling has saved for other textile mills. Better yet, call a P&H Hoist Engineer and see what it will save for *you!*



The *"Extras"* Are Standard Equipment, Added Values on P&H Electric Hoists

- Shaved gears for lifetime service . . . all bearings grease-sealed.
- Motors specifically designed and built by P&H for hoist service . . . high starting torque, frequent reversals, etc.
- Effortless push button control (variable speeds available on larger models).
- Transformer provides 110 volts at the push button.
- P&H's true motor ratings assure against failure at full capacity loads and speeds.

P&H

ELECTRIC HOISTS

4644 West National Avenue
Milwaukee 14, Wisconsin

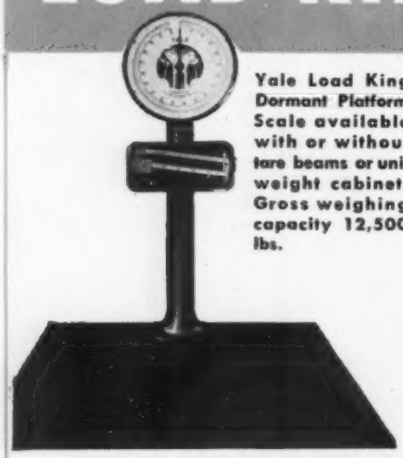
HARNISCHFEGER CORPORATION

HOISTS • WELDING ELECTRODES • MOTORS P&H EXCAVATORS • ELECTRIC CRANES • ARC WELDERS

ANNOUNCING

THE NEW YALE LOAD KING SCALES

new type mechanism insures a longer life of sustained accuracy

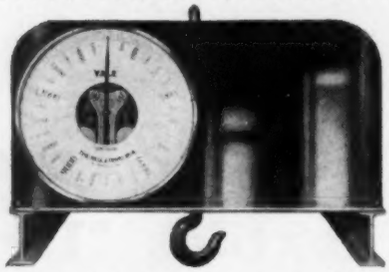


Yale Load King Dormant Platform Scale available with or without tare beams or unit weight cabinet. Gross weighing capacity 12,500 lbs.

Yale Load King Portable Platform Scale. Can be furnished with 4 wheels or 3 wheels and a handle. Dial mechanism and platform lever system are unaffected by travel over rough floors. Gross weighing capacity to 2,250 lbs.

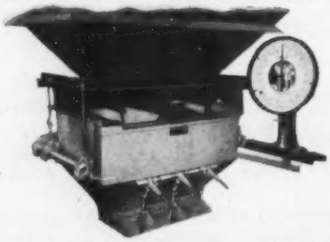
Yale Load King Counting Scales. Single or double fixed ratio models. Can be used for weighing and counting all kinds of parts quickly, accurately. Gross weighing capacity to 12,500 lbs.

Yale Load King Bench Scales. Available either with or without tare and capacity beams. Several platform sizes. Gross weighing capacities up to 2,250 lbs.

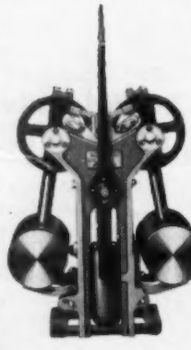


Yale Load King Crane Scale. Permits weighing while loads are in suspension; attach to hoist or crane. Standard and low headroom models. Gross capacities to 60,000 lbs.

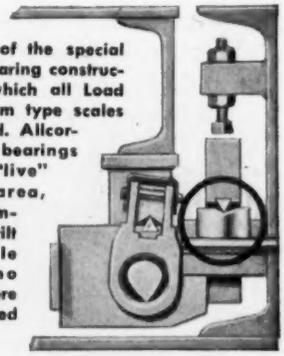
Yale Load King Overhead Track Scales. Standard or low headroom lever systems. Available for use with existing or planned overhead track facilities. Gross weighing capacity up to 4,500 lbs.



Yale Load King Batching Scales. Feature high gross weighing capacity and assure consistently accurate batching of hot asphalt, concrete and other loose materials, liquids. Gross capacities to suit requirements.



The new Yale Scale mechanism with exclusive Magnetrol feature that controls weighing accuracy. Other features include fixed center construction that prevents misalignment of parts, positive mechanism locking device that protects parts against damage, and draft bands of a new alloy metal that will not rust, corrode, kink or break.



A close-up of the special outboard bearing construction with which all Load King Platform type scales are equipped. All corner support bearings are outside "live" platform area, making it impossible to tilt a Yale Scale platform no matter where load is placed on it.

YALE

SEND TODAY FOR BROCHURES, MENTIONING TYPE OF SCALE IN WHICH YOU ARE INTERESTED.

THE YALE & TOWNE MANUFACTURING CO.

4649 TACONY STREET, PHILADELPHIA 24, PA.

AMANTHRENE* VAT COLORS
provide the answer to the demand for
better color fastness in textiles

Amanthrene

DARK BLUE BO

in paste or powder form

A deep, full toned Navy of reddish cast . . .
well suited to the fast coloring of cottons and rayons
by any of the vat application processes.

Especially recommended for printing and dyeing quality fabrics
when the cardinal call is for effective resistance
to light, washing, peroxide bleach and chlorine.

Another of the Amanthrene range of superior vat colors.
For detailed information on the whole range available,
as well as data regarding your own particular requirements,
consult our nearest branch. A.A.P. technicians are always
happy to be of service.

AMERICAN ANILINE PRODUCTS, INC., 50 Union Square, New York, N. Y. • ***Plant:*** Lock Haven, Pa.
Branches: Boston, Mass. • Providence, R. I. • Philadelphia, Pa. • Charlotte, N. C. • Chicago, Ill. • Los Angeles, Cal.
Chattanooga, Tenn. • **Dominion Anilines & Chemicals Ltd.** • Toronto, Canada • Montreal, Canada

*Reg. U. S. Pat. Off.

The Flame of Research

burned endlessly to create it...
burns brightly to proclaim it!!

Schollerized
WASHABLE WOOL
SAFE TO TUB • SAFE TO RUB

A PROCESS THAT MAKES WOOL *Truly* WASHABLE

AMERICAN ingenuity, encouraged by the unrivaled successes it has achieved in the Textile world, perfected the SCHOLLER WOOL SHRINKAGE CONTROL PROCESS*. In the research and development laboratories of Scholler Brothers, Inc., technicians labored constantly to achieve this process that makes wool *truly washable* . . . a process that can be applied to any wool or wool mixture. It prevents matting and felting and controls wool shrinkage to a maximum degree yet permits the wool to retain all of its inherently rich, natural qualities! And, because nothing is added to the wool nor taken from the wool, its anti-shrink, anti-felt properties are effective for the life of the fabric!...

Resiliency, elasticity, softness, texture, feel or "hand" are completely retained or enhanced. The tensile strength of the original yarn is unchanged or slightly increased.

Yes, Schollerized wool is *better* wool *because* it's Schollerized!

**Patent Pending*

The fascinating story on the Scholler Wool Shrinkage Control Process—and its adaptability to your product—is yours for the asking. Write to:

SCHOLLER BROTHERS, PLANT AND FACTORIES

VIEW OF INTERIOR OF SCHOLLER BROTHERS, INC. LABORATORIES

SCHOLLER BROTHERS, INC.

Manufacturers of Scouring, Dyeing and Finishing Materials

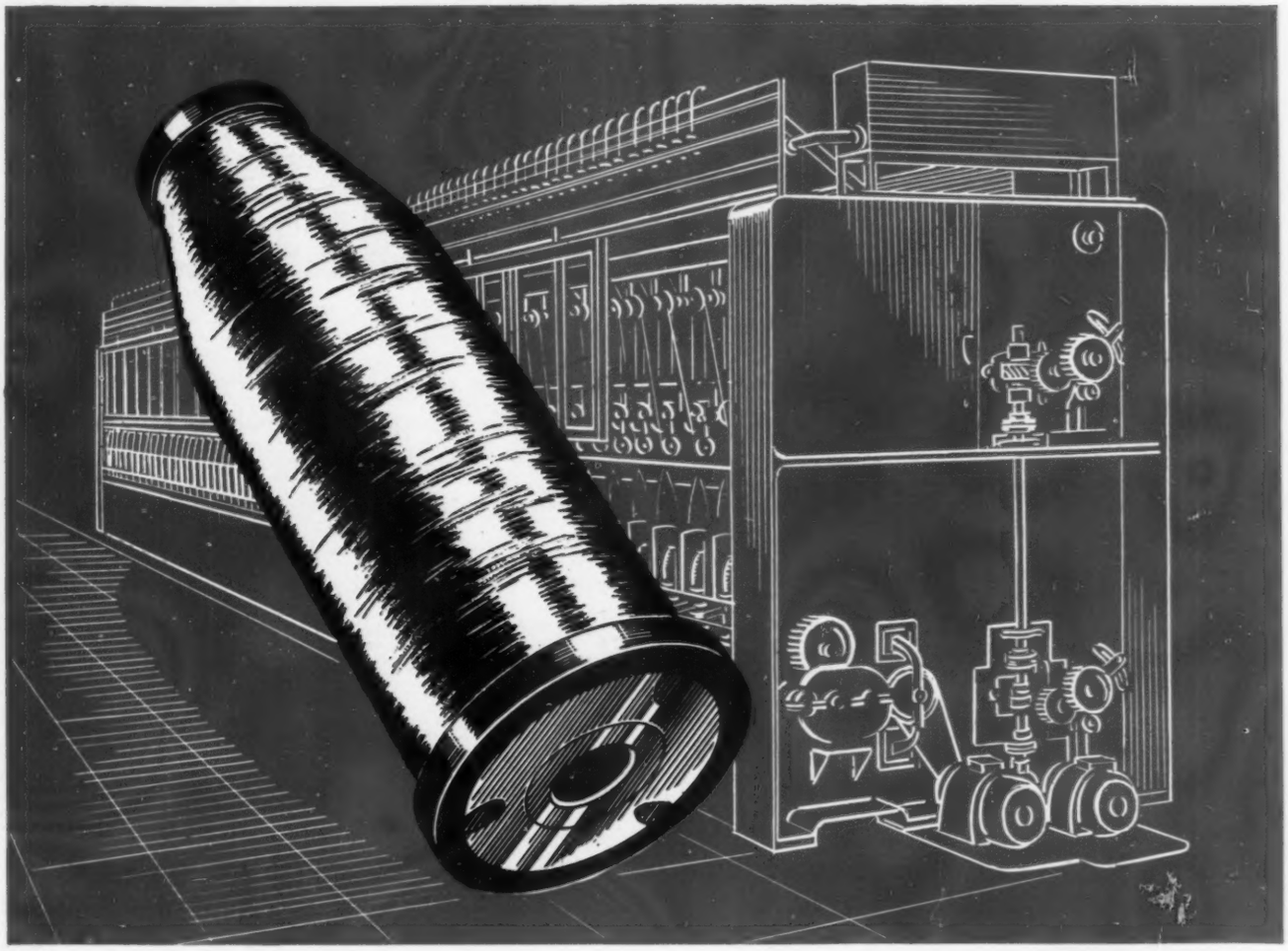
COLLINS at WESTMORELAND, PHILADELPHIA 34, PA.

IN CANADA: SCHOLLER BROTHERS, LTD., ST. CATHARINES, ONTARIO

SERVING THE TEXTILE INDUSTRY FOR MORE THAN 40 YEARS

AUG 10 1948

YES! Tycol Alweave Textile Spindle Oils perform better . . . BETTER . . . BETTER



Tycol Alweave Textile Spindle Oils perform better because:

. . . *Tycol Alweave Textile Spindle Oils* are low viscosity oils that maintain their lubricating value at spindle operating temperatures, letting you operate continually at top speed.

. . . *Tycol Alweave Textile Spindle Oils* are light colored and available in both mineral and compounded types for a wide variety of mill processes.

. . . *Tycol Alweave Textile Spindle Oils* step up production by reducing spindle drag, thread breakage and bolster losses.

For further information about Tycol Alweave Textile Spindle Oils and the rest of Tycol's "engineered lubricant" line, contact your nearest Tide Water Associated Office today.

TYCOL
INDUSTRIAL LUBRICANTS

Boston • Charlotte, N. C.
Pittsburgh • Philadelphia
Chicago • Detroit • Tulsa
Cleveland • San Francisco

TIDE WATER ASSOCIATED OIL COMPANY
17 BATTERY PLACE - NEW YORK 4, N.Y.

LUBRICATION — "ENGINEERED TO FIT THE JOB"

Texrope Vari-Pitch Give More Output

Quick Change in Speed Reduces Downtime, Increases Productive Time

TEXROPE VARI-PITCH DRIVE provides quick changes in machine speed without changing sheaves. With Motion Control *Vari-Pitch* sheaves, infinite variations in speed within a wide range are available instantly, *without stopping the machine.* With Stationary Control *Vari-Pitch* sheaves, the change requires only 5 to 8 minutes. Machine downtime and unproductive labor time are greatly reduced. You can make speed adjustments easily and quickly, squeezing the last possible per cent of efficiency from your machines.

EXACT SPEED CONTROL, WIDE ADJUSTMENT

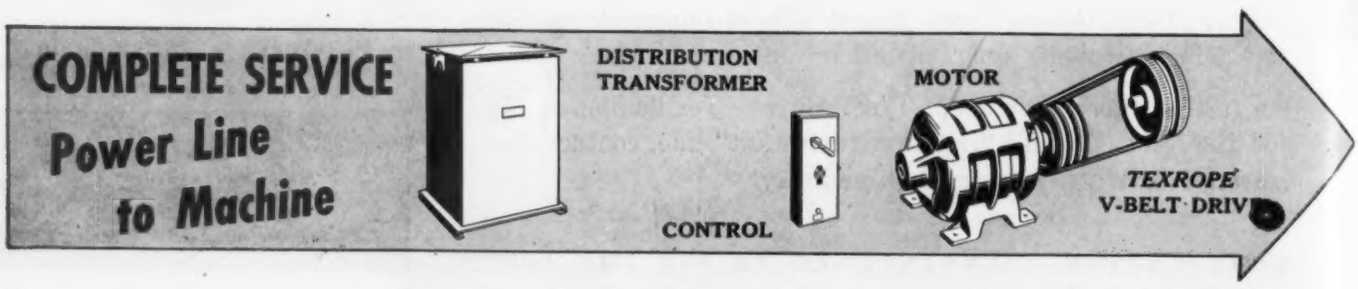
Vari-Pitch sheaves provide for infinite speed variations within their range. Machines can be operated at precisely the required or rated speed for maximum efficiency. Installing a single *Texrope Vari-Pitch* sheave will provide speed variations up to 25 per cent, using standard V-belts. Wide range *Vari-Pitch* sheaves and Q or R belts provide variations up to 100 per cent. *Texrope* enclosed *Vari-Pitch* speed changers allow speed changes up to 375 per cent.

ALLIS-CHALMERS OFFERS COMPLETE SERVICE

Full range of *Texrope Super-7* V-belts — standard, *Vari-Pitch* and easy-mounting *Magic Grip* sheaves— improved *Quick Clean,* loom and standard squirrel cage motors, efficient dry-type distribution transformers — motor control. Buy all of this equipment from one dependable source — backed by undivided responsibility for correctly engineered application and performance. Conveniently located Allis-Chalmers District Offices and Authorized Dealers offer you prompt, efficient attention. Call the one nearest you or write ALLIS-CHALMERS, MILWAUKEE 1, WIS.

A2436

Texrope, Vari-Pitch, Magic Grip, Super-7 and Quick Clean are Allis-Chalmers Trademarks.



AUG -9 1948

Drives

TYPICAL A-C TEXTILE DRIVES

Wide Range *Vari-Pitch* sheaves with Stationary Control are used on these spinning frames in a North Carolina textile plant. In addition to the *Vari-Pitch* Drives, this installation includes new type 10 HP *Quick Clean* Motors, *Texrope* V-belts and motor control. Be sure you get the advantages of coordinated equipment, engineered installation, undivided responsibility. Standardize on Allis-Chalmers for *everything* between power line and machine.

ALLIS-CHALMERS

Originators of the Multiple V-belt Drive for the Textile Industry

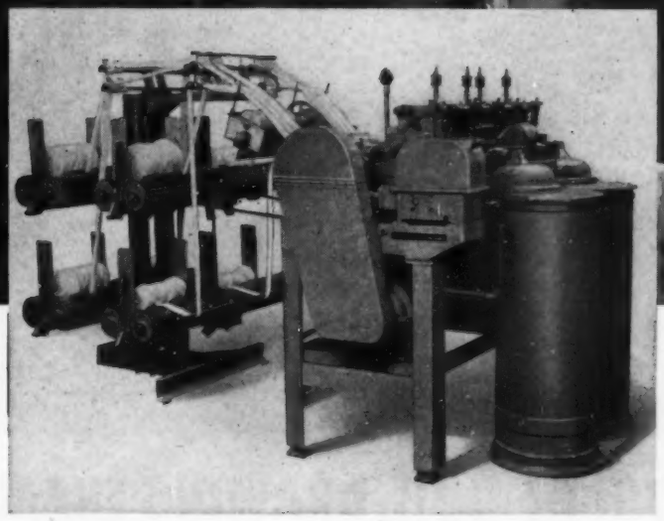
We're getting OUT OF THE WOODS

IT'S mighty gratifying the way orders for Jenkins' "Dynamically Balanced" cylinders have been increasing month by month. In fact, we've been snowed under, but we are beginning to get out of the woods. With our increased facilities and personnel, we hope soon to be able to handle all orders promptly. Meantime, thanks for your patience when we were still in the woods and couldn't give you immediate service.

JENKINS METAL SHOPS *Incorporated*

GASTONIA, NORTH CAROLINA

35% OVERALL SAVINGS at Cleveland Worsted Company



The Cleveland Worsted Co. was one of the first to try this new method of pin control for full plant production. The first result noted was a better sliver—cleaner, stronger, more uniform—less yarn breakage at the looms.

Number of operations was cut. Three passes through the Warner & Swasey machine did what formerly had taken six operations on six different machines.

"Doublings" were cut from 972,000 to 480.

These, and many other benefits and savings have led Cleveland Worsted to install a large number of Warner & Swasey units in order to change its process over to this vastly improved method of pin drafting control.

IF you handle ball-top or combed sliver, Bradford or French comb...
AND you want more uniform sliver for yarn of evener count and greater strength...
WITH fewer operations and lower overall costs...

Investigate the new

WARNER & SWASEY PIN DRAFTER
Trade Mark

WARNER & SWASEY
Cleveland
TEXTILE MACHINERY DIVISION

Send for Descriptive Booklet
Mail this Coupon Today

You can do it better, faster, for less... with a Warner & Swasey

THE WARNER & SWASEY COMPANY
Textile Machinery Division, 5701 Carnegie Avenue
Cleveland 3, Ohio

Yes, I would appreciate additional information about the Warner & Swasey Pin Drafter.

Name ..... *Title* .....
Company .....
Address .....
City ..... *Zone* ..... *State* .....

C-848

Reduce

- **FLOOR SPACE by 50%**
- **CAN COSTS by 50%**
- **DRAWING DELIVERIES by 50%**

. . . and still maintain equal production

WHITIN BI-COIL DRAWING FRAMES

Wouldn't you save money if you could increase available card room floor space, cut can costs and sliver deliveries in half and still maintain the same production and sliver quality? Of course you would. And you can do just that by installing Whitin Bi-coil drawing frames.

Oscillating can tables, a patented feature of the Bi-coil system, have successfully solved the problem of handling twin slivers. The sliver is free from twist due to the improved can motion and its quality is improved by the use of lower drafts. Bi-coil also provides easier creeling and cleaning for the operators. You'll find that Bi-coil Drawing is a factor essentially important to your mill investments.

Write today for our illustrated folder giving complete details and specifications of Bi-coil Drawing Frames

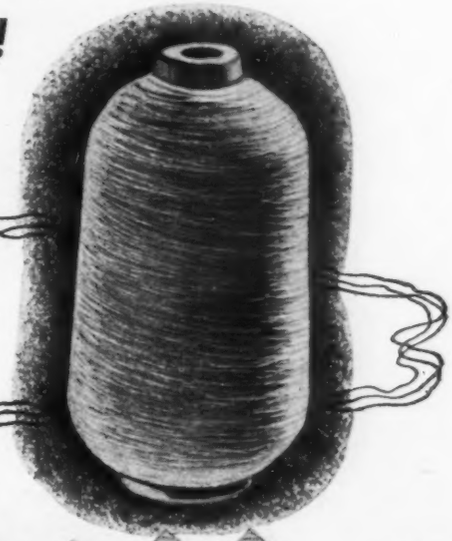
Whitin MACHINE WORKS

WHITINSVILLE, MASSACHUSETTS

CHARLOTTE, N. C. • ATLANTA, GA.

WORKING WITH RUBBER YARNS?

Control their tension from start to finish!

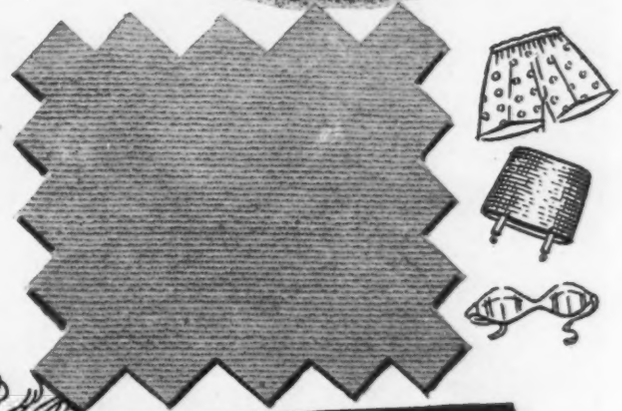


from skein TO CONE...

Just put the *Kidde* Tension Control, with its free-running roller bail, on your Universal 50's — and watch your packaging troubles disappear! With the Kidde Control, you can wind cones of relaxed rubber yarn, with a stretch of only 10 to 15%. And you can wind them directly from the skein, *in a single operation!*

...from cone TO WARP

It's a simple matter, too, to warp rubber yarns from the cones *in a uniformly stretched condition.* You merely set the *Kidde* Tension Compensator for the amount of stretch *you* want . . . the Compensator *maintains* that stretch, regardless of variables in other factors.



MILL-TESTED!

In mill after mill, under production conditions, the *Kidde* Tension Control and the *Kidde* Tension Compensator have *proved* their ability to maintain uniform stretch in rubber — from skein right through to the finished cloth. You'll want the full story of these *Kidde* devices — you can get it by mailing the coupon.

Walter Kidde & Company, Inc.
890 Main Street, Belleville 9, N. J.

Gentlemen:

I want full information on the *Kidde* Tension Control and the *Kidde* Tension Compensator for winding rubber yarns.

Name.....
Position.....
Company.....
Street Address.....
City.....Zone No.....State.....

WALTER KIDDE & COMPANY, INC. — 890 MAIN STREET, BELLEVILLE 9, N. J.

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FIRE EXTINGUISHING EQUIPMENT
FIRE DETECTION DEVICES
HIGH-PRESSURE CONTAINERS
OIL RE-REFINERS AND FILTERS

Kidde
MANUFACTURING ENGINEERS

VALVES, CYLINDERS, SPHERES
TEXTILE MACHINERY
AVIATION SAFETY DEVICES
OIL HEAT TRANSFER UNITS

a great new loom motor

...designed by GE for the looms you're now using—and those you're planning to buy!

it's built the way a loom likes it!

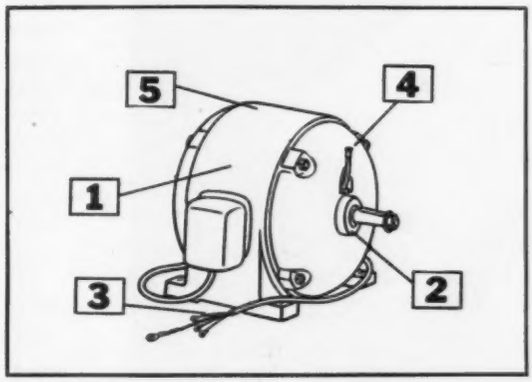
This new G-E loom motor was designed for one application and one only—loom service. After a detailed analysis of the power requirements of looms, G-E engineers developed this new line of motors with each rating "tailored" to meet the specific needs of loom drives. They considered looms operating not only at conventional pickages but at the higher speeds which modern production requires. And they incorporated physical innovations which, along with its efficient performance, make this loom motor a real buy for your money.

G-E textile loom motors are easy to install on existing and new equipment

it's better protected than ever!

In addition to protection against physical damage, electrical breakdown, and operating wear-and-tear, this new loom motor gives you:

1. A rugged, totally enclosed, cast-iron frame which is shorter, takes up less aisle space.
2. Larger diameter, wool packed, steel-backed bronze bearing linings for greater capacity and longer life.
3. Multi-conductor jacketed cable with ground lead (no conduit) to meet insurance recommendations.
4. A pinion-end bearing that's easier to lubricate.
5. All ratings with a single diameter frame to make it easy to change ratings as production demands vary.



GENERAL ELECTRIC

TOTALLY ENCLOSED LOOM MOTORS

Lint-free and cast-iron!

General Electric Company, Section D66I-31
Apparatus Department, Schenectady 5, N. Y.

Please send without obligation a copy of your Bulletin GEA-5011 which describes the new G-E totally-enclosed 40° C rise loom motor.

Name_____

Address_____

City_____ State_____

with DAYCO

ROLL COVERINGS

In a test in which 1,134 spindles were observed and which covered 13,261 spindle hours in a large southern mill, *Dayco* Roll Coverings showed fewer lap ups on top and bottom rolls and 11.7% less unclassified ends down. Actually, there were more than three times as many lap ups on the bottom rolls where competitive roll coverings were used, although all the bottom steel rolls had just been reworked and were in top operating condition. Both the *Dayco* and competitive roll coverings had been in use from three to four months at the time the test was conducted.

Test after test, under actual operating conditions, proves that *Daycos* run with 10% to 50% fewer ends down than other makes of roll coverings. *Daycos* consistently outperform other roll coverings because they are built with exactly the right amount of cushion and the correct coefficient of friction. *Daycos* are not affected by temperature or humidity. They retain their superior physical properties throughout their long service life. In fact, the characteristics of *Dayco* Roll Coverings are such that *Dayco's* surface drafting properties improve with use.

Put *Daycos* on some of your frames and test them yourself. Let them prove for themselves that they will give you better service and longer service at less cost. For complete information, write *Textile Products Division, The Dayton Rubber Company, Woodside Bldg., Greenville, S. C.*

Write today for your free copy of Dayco's new Cot Grinder bulletin, No. A-550.

Dayton Rubber

THE MARK OF TECHNICAL EXCELLENCE IN NATURAL AND SYNTHETIC RUBBER

Wrenn Warbles Sweetly

"I have just finished reading your article about Dictograph in the last issue (May) and it is certainly one of the best write-ups I have seen in many days. We certainly want to express our appreciation and thanks for your having done such a nice job. You will also be glad to know that we are receiving considerable comment among our textile friends concerning this."

J. PRESTON WRENN

Wrenn Brothers
Charlotte, N. C.

◆

New Loom Creates New Interest

"Would appreciate your courtesy in mailing me an extra copy of your June issue which contained an article on a new shuttle-less loom."

J. M. CURRAN, JR.

Treasurer
Summerville Mfg. Co.

◆

1947 Editorial Indices Available

"We do not have a 1947 Index. It may have been mislaid. Therefore, would appreciate it if you would send us another copy of it. If necessary, we will be glad to purchase an additional copy of the December 1947 issue, if available, in order to get the cross-index."

J. F. HAGAN

Callaway Mills, Inc.
New York office

There is still a supply of these indices available without charge, for anyone needing them.

◆

Editors Can Be So Right

The following letter brought forth this remark from our editor, "Messages of this type should be shouted from the housetop (or in our advertising pages). . . . even outdoor advertising is better than NONE."

The letter:

"We note on page 139 of your May issue than Contributor No. 8066 is having trouble with filling breakage on his looms. If this party is having trouble with his filling breakage on the transfer we can positively stop this with a simple device we have which can be installed easily and will positively prevent this difficulty."

Name withheld

It Is Preposterous

"I have your letter requesting information concerning the machine we use for applying yarns on slasher squeeze rolls. As preposterous as it sounds I have been unable to find any information as to the manufacturer of this machine even though all of our slashers are so equipped and have been for several years. The machines do not have a *single name nor number on them.*"

Name withheld

Italics are ours. Seems to us manufacturers would want their names on equipment (especially when they find out it lives up to their expectations).

◆

Car Operating Costs Up

We knew it because we used to drive all day with gas from a dollar bill and we had lunch money left from a ten spot when buying a tire. Companies thought they were very generous when they allowed four cents a mile for private car operations. A recent article in "Automotive News" said that present postwar costs are approximately 8¼ cents per mile. If costs continue to mount we predict Old Dobbin will again have his day.

◆

Had It Been Mother-in-Law???

The Plastic Materials Sales division of B. F. Goodrich received the following letter that caused many a chuckle:

"Please give me the strength of your Koroseal clothesline. I know it will hold all the clothes one hangs on it; however, in case of fire I may have to lower my wife out of a third story apartment window and I might have to use the line for that. I wouldn't want to drop her, although she isn't much good; however, she happens to be the only one I have. Thank you."

◆

Liked Employee Publications Article

"Will you be so kind as to send us three copies of the article 'Employee Publications: a sound investment or a total loss' published in December 1947?"

LAURENCIO ADOT ANDIA

Vice-President
Adot S. A.
Buenos Aires

SHORTS and REMNANTS

By M. L. D.

A Business Paper Function

The following letter should be a reminder of the function and value of a business paper:

"In the March (1948) issue of your publication, we see a description of a new wool-nylon fabric. We advise that we are very much interested in this fabric and if you can supply us with the name of the manufacturer or seller, we would appreciate it very much."

LOUIS I. SHAIN

Shain & Co., Inc.
Boston, Mass.

What's new in an industry usually makes its first authentic appearance in a business publication. Letters like the above are commonplace with us. It is a reminder to our editors that the material they put in an issue must be scanned closely for correctness and authenticity because T. I.'s prestige gives added weight to the announcements. It should be a reminder to manufacturers that business papers are read for self-improvement and job-improvement . . . that the business paper is the logical place for advertising their equipment consistently, and intelligently.

◆

Will Be Cleared Up Soon

"With reference to 'Theory and Practice of Spinning' in your esteemed edition (January 1948) we are ambiguous about the interpretation of V in % as calculated by Netherlanders. . . . We are anxious to learn the improved measurement for the percentage of thickness variation in sliver testing. With our own rough mathematical knowledge, more embarrassing calculations are attained instead of precise ones."

RESEARCH STAFF

Sung Sing Cotton Mill No. 9
Shanghai, China

In the very near future we will have a feature article on this question, which has been raised a number of times.

Robert M. Frazer, director of S. A. I. C. Fabrica Argentina de Alpargatus, Buenos Aires, prepares to take off in his private plane from a field near his large mill for his "camp" (we'd call it a cattle ranch). Our thanks to Amateur Photographer Walter Mitchell, southern representative of Draper Corp., for the snapshot which he made recently while he, Bob Mitchell of J. E. Rhoads & Sons, and Dick Smith of "Textile Industries" were in South America attending the Rotary International Convention and visiting textile mill sin Peru, Chile, Argentina, and Brazil.

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. . . New Rohm & Haas Desizing Agent pays extra dividend.

RHOZYME LA gives

✔ STABILITY AT HIGH TEMPERATURE =

✔ MAXIMUM DESIZING SPEED =

and in addition this important extra advantage

✔✔ THE ECONOMY OF A LIQUID ENZYME

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Textile Industries

AUGUST
1948

Productivity, the Key to Prosperity

WE HAVE been hearing a great many assertions on every hand that production is the cure for high prices and the inflation that they invite. Eminent members of the Federal government have led us to believe that if we can just step up production, our troubles are over, and that prices will somehow magically adjust themselves to a much lower level. A good many economists and business men have seconded this view, and it is only now and then that a still, small voice is heard, pointing out the very apparent fact that it is *productivity,* rather than production, which is the key to prosperity at lower prices.

During the war we were getting plenty of production of an endless number of things, but these were being produced at fantastically high prices. The extravagant manner in which the war materials procurement was conducted has carried over into our peacetime economy, and the millions of people who were grossly and extravagantly overpaid have insisted upon continued over-payments, and worst of all, have insisted upon a perpetuation of wartime inefficiency.

All during the war, there was incredible waste and extravagance in the doing of everything. Competent manufacturers estimated that many war plants were over-staffed from 100 to 300 per cent, and workmen who became accustomed to such conditions of employment have been very insistent upon perpetuating them.

The whole structure of our incredible American prosperity has rested squarely on the productivity of our people. *Productivity* and not production brings about prosperity. An English mill running four looms to a weaver can get just as much production as an American mill with the same number of looms running at the same speed, but the American mill will operate with from one-tenth to one-twentieth of the number of weavers required in the other plant. The production in either case might be exactly the same, but the productivity of the American mill is staggeringly higher than that of the British mill.

Since the beginning of the Industrial Revolution, labor unions have been bitterly fighting productivity. There may be a few notable exceptions to this policy among the unions, but taken by and large, labor unions, almost without exception, have fought every move toward greater productivity on the part of the workers.

In our time, the railroad workers repeatedly tried to get a Federal law passed limiting the length of freight trains to 40 cars. These railroad workers, every time a contract has to be renewed, are after more featherbedding practices and insisting on more men to do the same amount of work. They have even proposed that it should be required to have a crew of some 10 or 11 men on one Diesel locomotive assembly.

The textile workers repeatedly have had bills introduced in different state legislatures to cut the number of looms per weaver to something like 36 or 40 looms, and they have tried to otherwise prohibit productivity.

The machinists' union insists upon enormous amounts of featherbedding. On a recent visit to a machine shop which makes quantities of pulleys, it was noticed that eight pulley lathes were presided over by eight machinists, where one could easily have run all eight lathes. None of these eight men was doing anything; they were just sitting there watching the lathes. In another section of this shop, there were a number of milling machines with one man per machine, where one man could easily have run six or more on the work to be handled.

In another plant there was a boring bar presided over by one man, who certainly could not average working more than two hours a week. The rest of the time he stood aimlessly by, watching the machine take its cut. Some days he did nothing except start the motor driving the machine in the morning and stop it at night.

Right across from this boring bar was a planer with another man dozing on a stool in front of it, and adjacent to the planer was a radial drill with a drill press operator, and a helper. One man should easily have been able to do all of this work, with plenty of resting time, because both the boring bar and the planer would run for hours without attention, and the man could have run this drill just as well with the other two machines going as he could with nothing else to do but run the drill.

The building trades of course have developed waste and featherbedding to a science, and in hundreds of cities it is against the law to do anything like a full day's work. Twenty-five or thirty years ago, a bricklayer was supposed to put down about 2000 bricks a day

on straight course work. About the most that a union will let a bricklayer put down today are 600 bricks, and in some localities, this has been cut so that the poor bricklayer has to stand and stare at the brick for a while before he dares touch it, and then he picks it up and caresses it for a time before risking putting any mortar on it.

A lather is allowed to put up about one-third or one-fourth of the laths that he could easily nail in place. Electricians and plumbers are threatened with excommunication if they do not waste at least half of their time. Any suggestion of productivity is anathema, and these people will strike at the drop of a hat in the protection of these criminal practices which jack up the cost of building.

In the plant which had the somnolent pulley lathe tenders, the molders had refused to make certain lightweight pulleys. This would of course have been impossible a few years ago, because if the molders had refused to make certain types of pulleys, they would have been fired, but these are union molders who can't be fired, so they just refuse to make lightweight pulleys. Consequently, all users of pulleys were forced to take heavier pulleys which cost more and which wasted iron, and this, at a time when the foundry was running short hours on account of inability to get pig iron.

It would seem that even the feeblest intelligence could see that there was less profit for molders on the heavy pulleys that used up a lot of scarce iron than on the lighter pulleys which required more molds to be set up for the same amount of iron, so they must have figured that the fewer pulleys they turned out, the better. Furthermore, this resulted in customers of this particular concern refusing to buy the more expensive pulleys and going elsewhere, which of course reduced the amount of available work for the molders. By making these pulleys heavier than necessary, however, the molders had accomplished one important thing—they had reduced their productivity.

It has only been about eight or nine years since a cotton card cost around $900; whereas, today, an identical card, made by the same manufacturer, costs about $3000. The cost of living has gone up about 70 per cent, according to the Federal government, but the cost of making a cotton card has gone up about 230 per cent. Inefficiency must account for a lot of this discrepancy.

A foundryman was recently pointing out that a large, special gear which he had made for many years without change used to be set up by a molder at the rate of seven a day. The foundry is now unionized, and this gear is set up at the rate of two a day. Not only does the molder get paid more than twice as many dollars for his day's work as he got when he set up seven of these, but he has cut his production about 70 per cent.

As this is written, the coal miners have just got another increase in their wages and benefits, and the cost of coal is going up. The textile workers are demanding another 15 per cent increase in their pay, and the cost of yarn and cloth will go up, and this just at a time when many mills are in distress on account of a slumping market. The automobile workers have just been given an increase in wages, and the price of automobiles has been raised. The steel workers are now coming up for their handout, so that the price of steel will be higher.

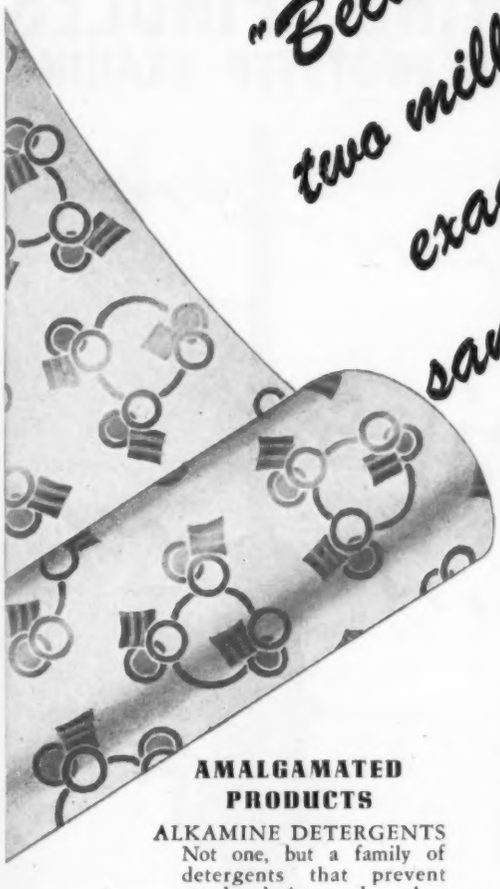
In 1929, when the big depression struck, there was plenty of production everywhere, but it was production at a low rate of productivity, and consequently, at a high cost per unit.

We are getting production and plenty of it from all of these groups of workmen. The steel industry is running at a very high rate of production, and so is the automobile industry. The textile industry, of course, has operated at a phenomenal production rate, but we wonder how many of these industries, if any, can brag about higher productivity.

In 1929, when the Big Depression struck, there was plenty of production everywhere, but it was production at a low rate of productivity, and consequently, at a high cost per unit. The building trades had finally managed to push the cost of building so high that nobody could afford to build. Thousands of manufacturing plants were heavily staffed with incompetent, high-cost workmen. Toward the end of the depression, after a little efficiency had been injected into American industry, we were producing more goods than in 1928 or 1929, with considerably less labor. Some of this was of course due to technical improvements, but a lot of it was due to the fact that there were plenty of people without work, and those who had jobs were willing to do something to hold them. The war definitely reversed that trend, because during the war, owing largely to the frightful inefficiency in all war activities, there were jobs for everybody, doing very little work (and sometimes no work) at very high wages.

This trend needs to be reversed again, but it is going to take a depression to reverse it, and when the depression has reversed it, we will be laying off operatives and reducing payrolls just in time to make the depression worse. It seems a great pity that people haven't sense enough to do the things that will prevent a depression, rather than the things that will insure it and make it worse.

The lower our national productivity per worker, the more people it will take to make everything, and the more it will cost to make it. This results in insistence upon increased wages and still higher prices. A common sense attitude on the part of our manufacturers and labor unions might possibly increase productivity enough to stem the rise in prices and kill off these insane demands for ever increasing wage payments, which can have no possible result except higher prices, leading to a calamitous depression, the severity of which will be in direct ratio to the amount of inflation that has to be wrung out of the economy.



"Because no two mills have exactly the same problem"

Here are three reports selected at random from Amalgamated customer service files.

Customer A: Needs a product to balance calcium and magnesium salts in water.

Customer B: Wants added weight and softness in knitted rayon piece goods.

Customer C: What can he do about streaky dyeing on cotton-spun rayon dress goods?

And then Amalgamated goes to work! . . . We offer a complete line of textile finishes, dyeing agents, penetrants and softeners, but that's only the beginning of this business. Our real job lies in adapting Amalgamated Products to the conditions in individual mills.

The service of our modern research and production laboratory is yours to command. Our Field Representatives are trained technical men—put *your* problems up to them.

AMALGAMATED PRODUCTS

ALKAMINE DETERGENTS
Not one, but a family of detergents that prevent streaky dyeing, make colors brighter.

FEN WATER REPELLENTS
A group of finishes to protect fabrics from water and surface stains.

DYNESOL PENETRANTS
A class of wetting agents with amazing penetration properties for dyeing and finishing.

VELUBRA WAXES AND SOFTENERS
A complete line of softeners to add weight and softness to fabrics.

ALPHASOLVE GRAINS
A water corrective and softener, technically sodium hexametaphosphate.

FILASEAL HOSIERY FINISHES
A complete line of finishes for rayon, silk and Nylon. Adds snag resistance and smooth appearance to stocking fabrics.

SERAVON SOAPS
An assortment of soaps instantly soluble in water, remarkably effective.

GET THIS BOOK . . . A factual report and buyers' guide about Amalgamated Products. It's the type of book you will keep for permanent reference, because it contains the results of our experience in meeting the demands of the Textile Industry. It's yours for the asking. Write for your copy today.

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Materials Handling Equipment at Columbia Mills

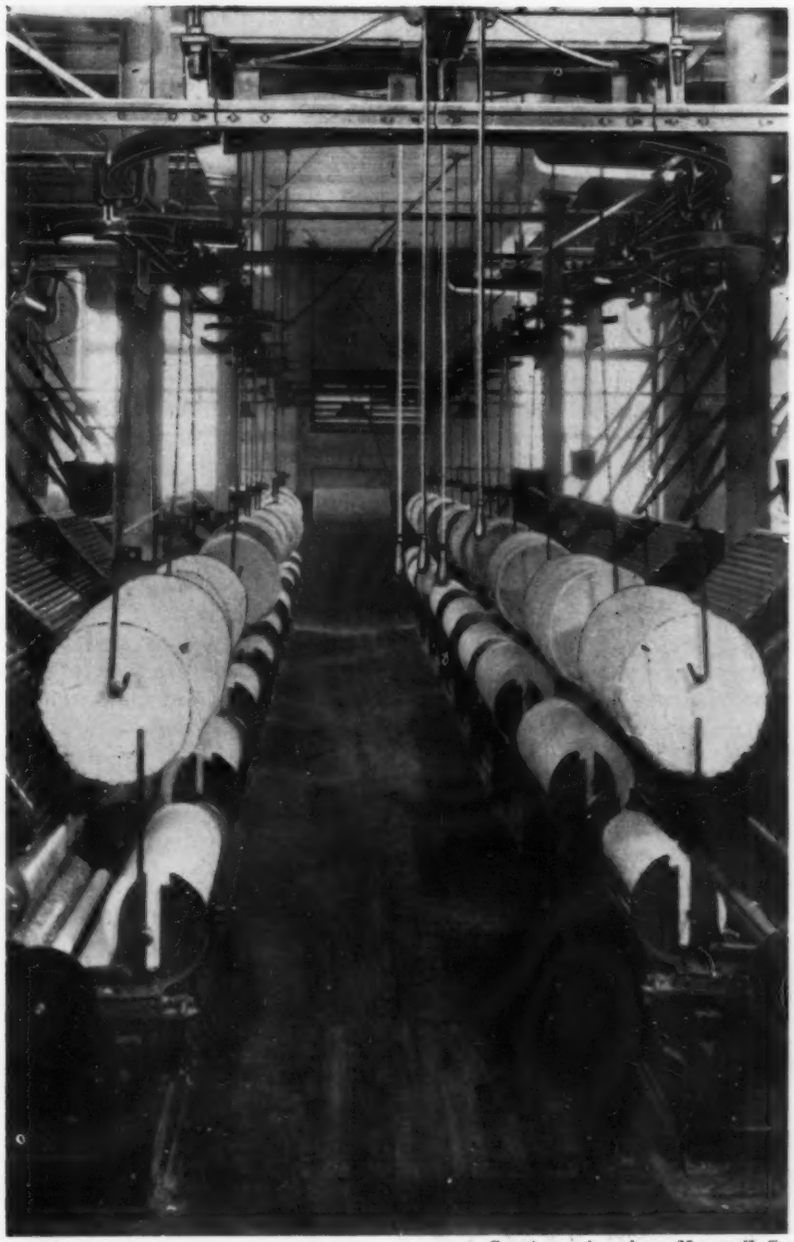
By HORACE L. PRATT

EXCLUSIVE

Complete description of materials handling systems and equipment employed in this Columbia, S. C., unit of Mt. Vernon - Woodberry Mills which is a large producer of industrial fabrics.

VISITORS in Columbia Mills, a unit of the Mount Vernon-Woodberry Mills Co., Inc., especially those in the mill for the first time, are impressed with the number of conveyor systems in use throughout the mill for the transportation of stock in process. This big duck mill, located near the Congaree river bridge in the city of Columbia, South Carolina, has within the past three years installed four large materials handling systems, several smaller systems, and has enlarged and improved existing conveyor units.

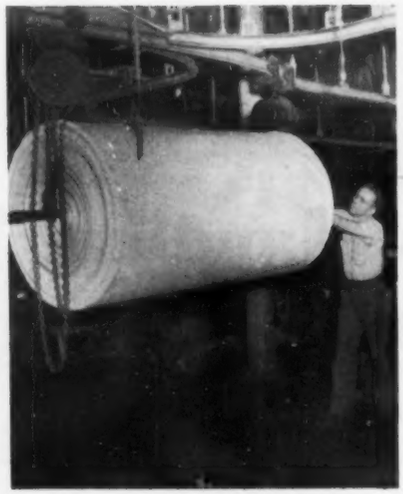
Each of these installations of mechanized materials handling equipment was the solution of definite transportation problems, among which were: the installation of large beam heads in the weave room, the specification by many users of industrial fabrics of roll lengths up to 600 yards, and the greatly increased cost of



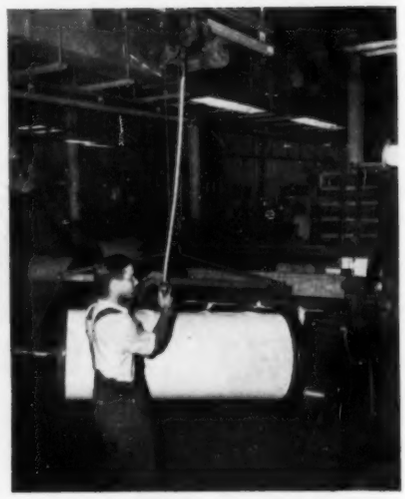
Courtesy, American Monorail Co.

View of a portion of the recently installed lap conveyor system which transports laps from the picker room to the card room. Note that full laps are on carriers hanging on tracks behind the cards. Lap stands are no longer required. Complete description of this system begins on page 74.

Overhead tracks and hoists are employed to lower the heavy warps into duck loom stands.



A 600-yard roll of duck leaves weave room for cloth room. Track extends all the way to the cloth room.



Operative doffs warper with assistance of an electrically operated hoist. Note control switch in his hand.

unskilled labor usually employed in handling and transporting the stock in process.

The use of large beam heads and the need for long length rolls made the installation of overhead materials handling equipment in the beaming room, the weave room and the cloth room absolutely necessary. High labor costs were influential in the decision to equip other departments with better facilities for the transportation of the stock in process. Smaller units, such as truck loading lifts, a truck-type tractor for handling cotton, etc., and various other installations throughout the mill were utilized in an effort to solve the smaller individual materials handling problems.

Older Installations. The task of loading the section beamers and doffing the warpers and beamers has long been such that an overhead track and blocks have been required. Although some manually operated blocks are still in use in this department, electrically operated lifts have been installed for doffing the warper, loading the section beamer, and handling warps and empty beams in the storage area. These will be discussed in more detail subsequently.

In 1929, when the first looms were equipped with the 32-inch beam heads, overhead tracks were put up for handling the heavy warps. These tracks were extended, as more looms were changed to carry these large beams, until the entire job was completed. When customers began to specify long rolls of duck, tracks were put over the weavers' alleys, although in some cases the cloth was run overhead, wound on a roll at the back of the loom, and doffed by means of the same equipment which handles the warps.

For a number of years the rolls of cloth were lowered to trucks and pushed to the cloth room by hand, but within the past few months the overhead track has been extended to the cloth room so that the rolls of cloth can be carried directly from the looms to the cloth room without extra handling.

Handling Warps and Beams. Some of the first overhead materials handling equipment in the mill was in the beaming room. Single tracks were installed over the front of each beamer, and the warps were doffed by means of a single block with the aid of long hooks. Because of the number of beam heads broken by this method of doffing and, the constant threat of danger to the beamer tenders and helpers, double tracks were installed to carry a crane with two blocks. Then the warps were removed from the beamers in comparative safety. The cranes rolled above the beam trucks, and the warps were lowered to the trucks and pushed by hand to the space provided for spares.

By means of a one-quarter ton Allen-Bradley Electro-Lift, running on an electrified track, the warper may be doffed and the section warp carried either to the section beamer or to the warp storage space. This track is so arranged that it takes care of all loading and unloading of the section beamer as well as doffing the warper.

Beam and Warp Storage. In a preceding paragraph it is noted that the warps from the beamers are loaded onto beam trucks and pushed by hand to the beam and warp storage space which is adjacent to both the beaming room and the drawing-in room. Empty beams are brought from the looms on similar trucks. Two 2-ton cranes are installed over the area used for storing these full warps and empty beams. Each crane is equipped with a two-ton Robbins and Myers electric hoist. These single-hook lifts have adjustable grabs for efficient handling of the warps and the empty beams. By means of short connecting tracks, the lifts may be pushed from one crane to another if it is necessary to transfer a warp or a beam laterally. It is thus possible to pick up a warp or a beam from any spot in the storage space and move it to the desired location with a minimum of manual labor. The tracks extend over the drawing-in frames and they facilitate handling the warps in this department.

Transportation of Yarn. The spoolers are located in a separate wing, and although the spooler room is adjacent to the spinning room, doffers had to push the yarn from certain frames as much as 400 feet. When large package spinning was installed several years ago, it became necessary to relieve the doffers of this task by employing yarn haulers who pushed the yarn to the spooler room, using trucks which carried four doff boxes. They, of course, brought the empty bobbins from the spoolers to the spinning room on the return trip.

In 1946 the American Monorail Co. installed a yarn handling system which operates from the spinning room to the spoolers. The carrier consists of two one-half ton, twin-hook electric hoists coupled together with a step-on Mono-Tractor cab unit for propulsion between the two departments. The trucks, formerly pushed by hand, have been enlarged to carry *five* doff boxes and have been provided with hangers. The doffers load the boxes of yarn on the trucks which are picked up by the carrier, two trucks being handled on each trip.

Although casual observation indicates the advantages of this conveyor system, time studies were made some time after it was put into operation, and confirmed the wisdom of this investment.

Conveying Cloth. For a number of years the finished cloth was transported by hand trucks a distance of 500 feet from the packing and branding tables in the cloth room, through the weave room to the shipping platform, or by electric truck a distance of 750 to 800 feet. It followed a circuitous route, first by elevator to the basement of the mill, then over the truck loading platform, and up on another elevator to the shipping platform. In either case the truckers were always in the way of production operations, and this condition constituted an accident hazard.

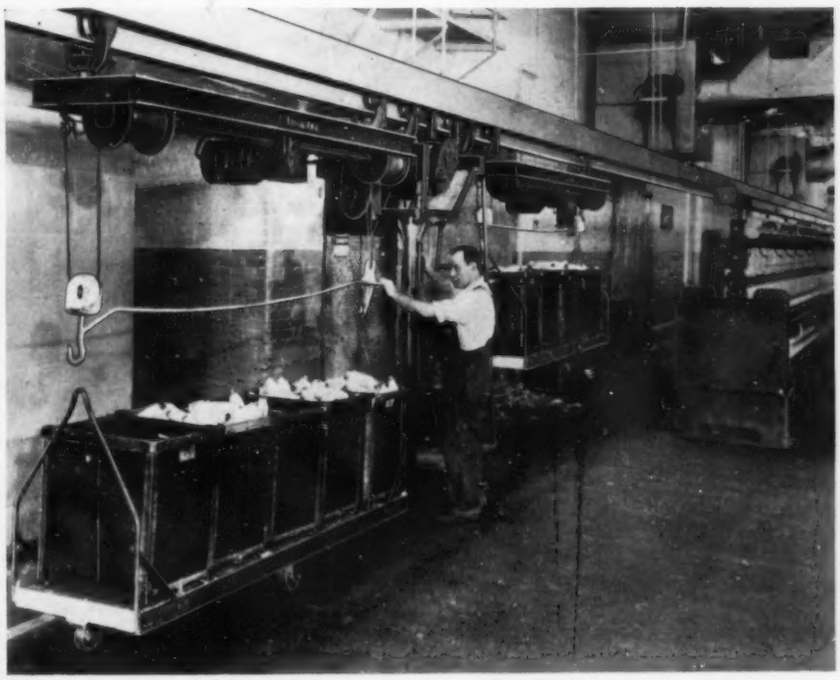
Later a hydraulic lift was installed outside the cloth room, and an opening was provided into this department. A concrete runway was laid from this lift around the outside of the mill to the shipping platform for the operation of the electric truck. This was a definite improvement over the older methods, but it was necessary for the cloth to be moved in all kinds of weather and considerable time was required for the truck to complete a round trip because of the distance (over 650 feet), and the fact that the lift moved at such a slow rate of speed.

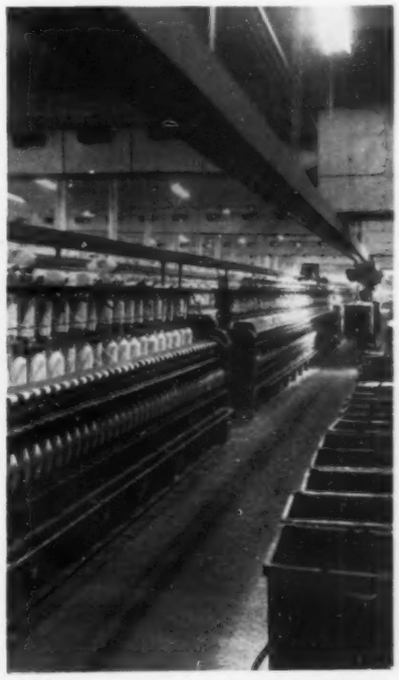
To further improve the handling of the finished duck the American Monorail Co. made a study of the situation and in 1947 they installed the present system. This system consists of a single track running slightly over 400 feet from the cloth room to the shipping platform. On this track run two, 4000-pound capacity, twin hook electric hoists with a cab attachment in which the operator rides and controls all movements. To protect the hoists and goods in transit, the entire system outside the mill is covered with corrugated metal fastened to steel girders on suitable supports.

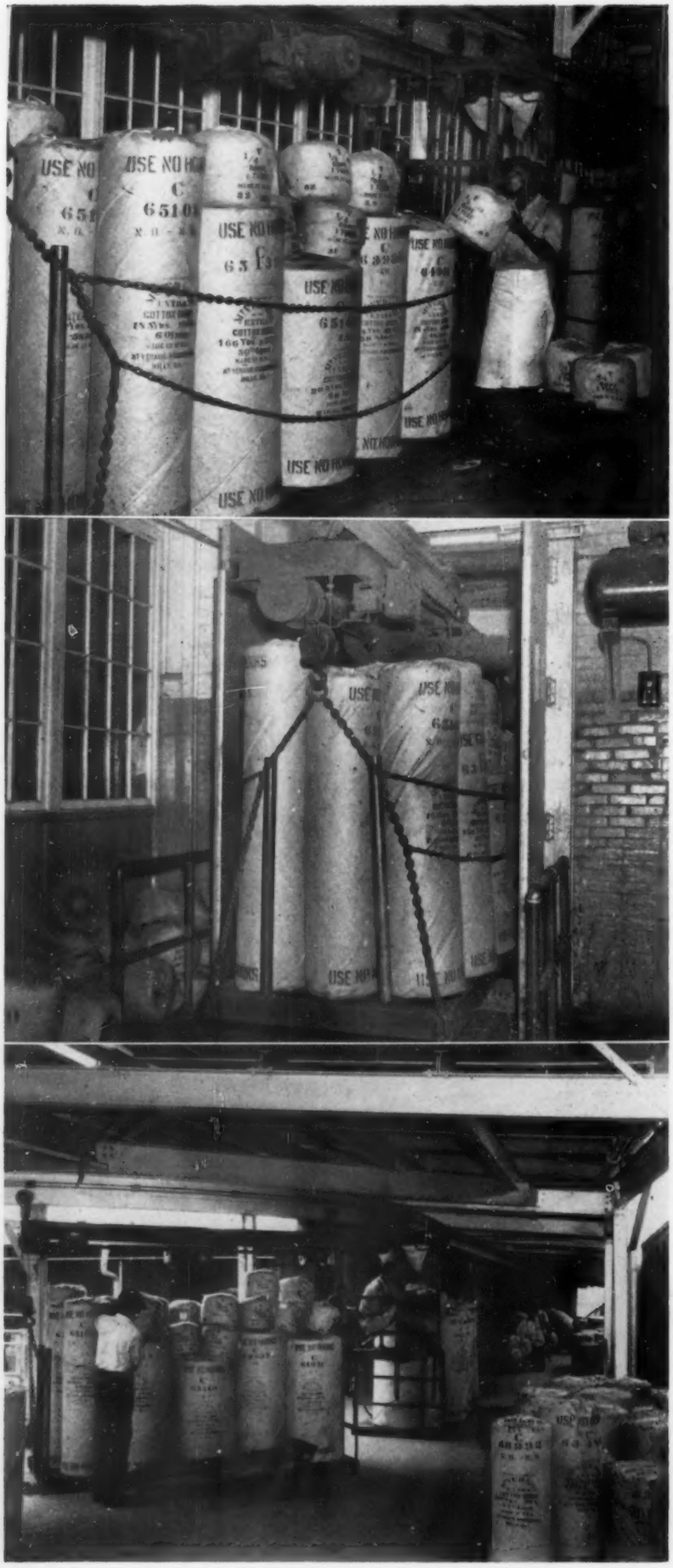
To permit access to the cloth room, two Stanley automatic air-operated doors are provided. Contactors on the hoists operate limit switches located on the track, one on each side of the doors. The switches energize solenoid air valves for opening the doors. The doors remain open until the hoists have passed through the opening and the contactor operates the switch on the opposite side. This

Two views of yarn handling system which is used to transport yarn from spinning room to spooler room. Carrier consists of two one-half ton, twin hook electric hoists coupled together with a step-on Mono-Tractor cab unit for propulsion between the two departments. Doffers load boxes of yarn on trucks which are in turn picked up by carrier and delivered.

Photos courtesy, American Monorail Co.







Three views of cloth conveying system. Photo at left shows operative loading cloth and rope on trucks which will be picked up by twin hook electric hoists, and carried to shipping platform. Center photo, loaded hoists leave cloth room through pneumatically operated automatic doors. Lower photo, view of loaded hoists as they arrive at shipping platform. Note operator sitting in cab from which he controls all movements of this large materials handling unit.

switch de-energizes the solenoid valves to close the doors.

It can be seen that this system handles more than twice the amount of cloth in less time than was required before the facilities were installed.

Cloth that is brought from the looms to the cloth room is placed on receiving platforms located just inside the cloth room door. The system of tracks is equipped with carrying cranes on which there are four Allen-Bradley, one and one-half ton Electro-Lifts. These hoists may be passed from one crane to another or run onto single tracks by means of short connecting tracks. A roll of cloth can thus be picked up from the receiving platform and placed behind any machine or inspection table in the room without having to be placed on a hand truck. No rolls are handled manually until they are finally doffed at the brushers and are ready for weighing and packing.

Lap Conveyor System. The latest conveyor system to be put in operation transports laps from the picker room to the card room. This system was installed during 1948 by the American Monorail Company. The P. O. M. Co., in association with Werner Textile Consultants, were the engineers.

The picker room is located on the floor beneath the card room and it was formerly necessary to load the laps on trucks to be brought by elevator to the card room. All lap handling was done manually, as is customary in most mills. The pickers were doffed and the laps were placed on the lap scale. The laps were taken from the floor, placed on lap trucks, four laps to each truck, and the trucks were pushed to the elevator where they were taken up one floor to the card room. Here they were unloaded from the elevator and pushed to the cards where the

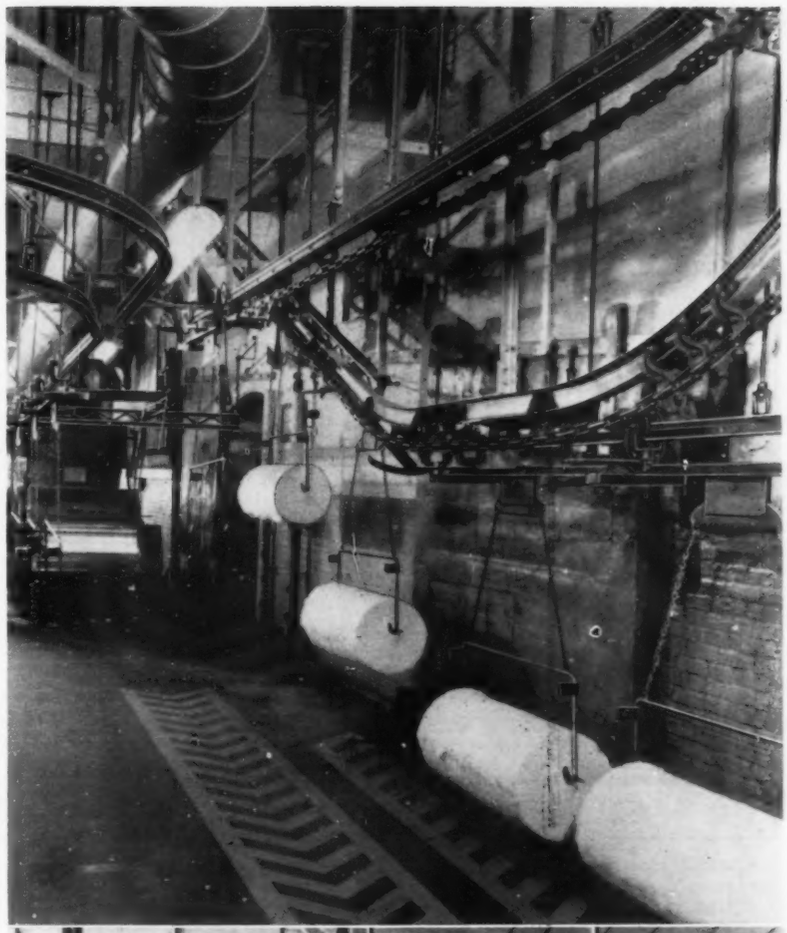
laps were placed on stands until they were needed.

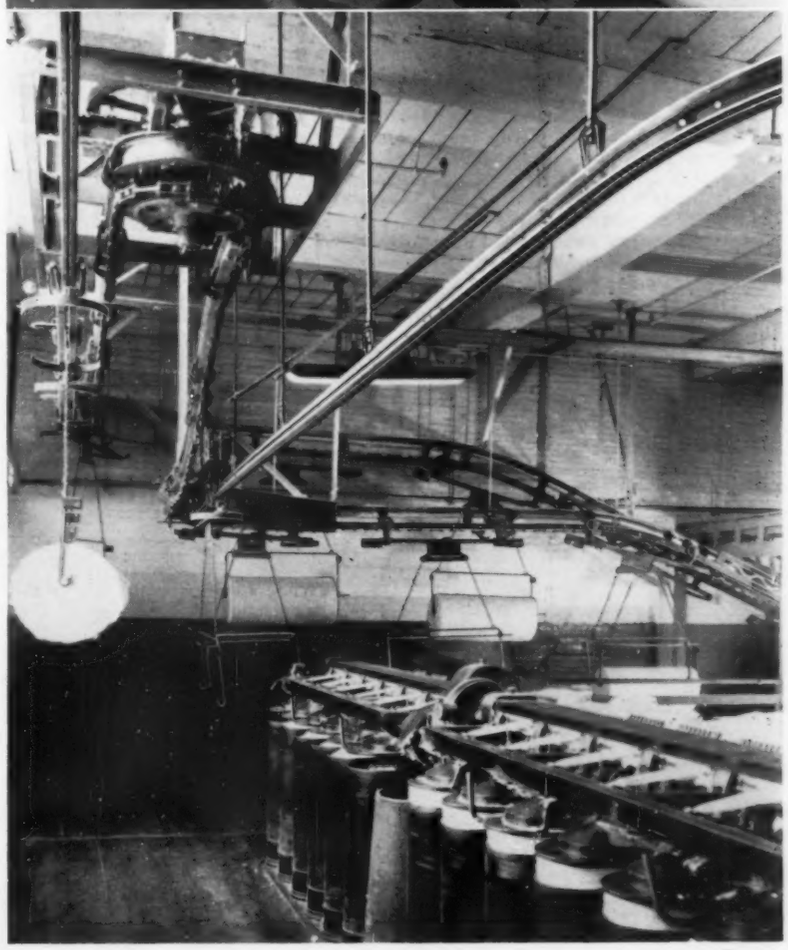
The new lap handling system has reduced manual operations to only five. They are: doffing the pickers, pushing the laps onto the switch tracks, laying the laps back of the cards, pushing the empty carriers to the return track, and pushing the carriers to the "doffing" track in the picker room. The rest of the operations are practically automatic.

This system consists of four essential elements. The installation includes a system of tracks and switches extending from the pickers to the cards and back to the pickers. The greater part of the track is pitched to permit the laps to roll by gravity. A booster consists of a motor driven endless chain with lugs for bringing the laps up from the picker room and returning the empty carriers to the picker room. A number of carriers are used, and each one is designed to carry one lap and to return the lap stick to the picker room. A Toledo automatic Printweigh track scale equipped with an electric eye, rejects laps weighing outside a predetermined tolerance. A brief description of the scale is necessary to enable the reader to better understand the working of the system.

The scale itself consists of three main elements; namely, a Printweigh head, a track scale section, and a photo-electric reject head. Connected electrically to this is the escapement which arrests the laps to avoid shock to the scale and prevents a lap from going into the weighing section while another lap is being weighed. Also a motor activated reject switch is connected to the escapement.

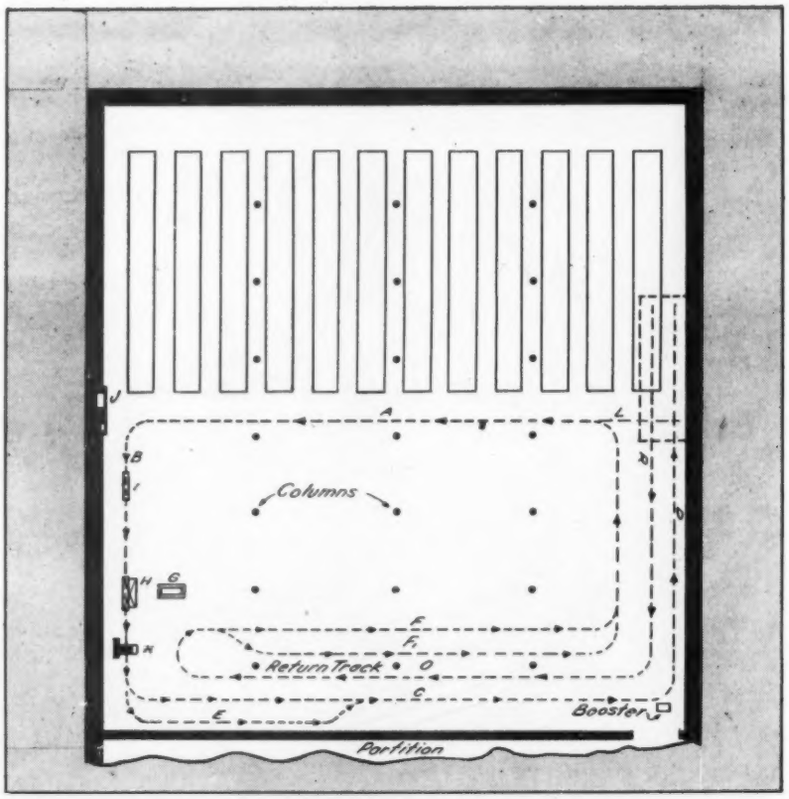
The reject head is equipped with two pointers, both working on the same axis. One of these pointers is adjustable and is set opposite the number on the dial corresponding to the standard weight of lap de-





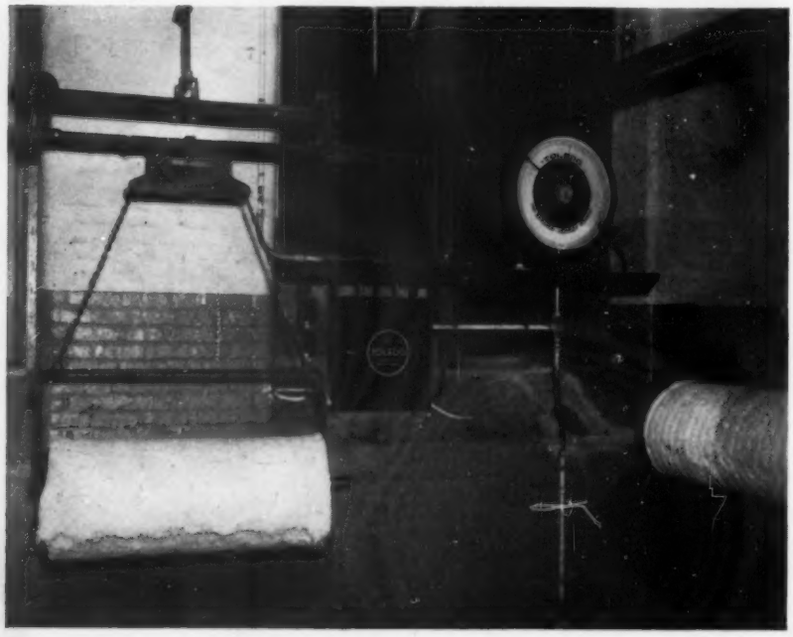
Two views of lap conveying system in operation. Upper photo is view of booster in picker room. Note laps going up to card room on floor above and empty carriers coming down. Right, view of booster in card room, showing driving unit. Laps are coming up and empty carriers returning to picker room.

Photos courtesy, American Monorail Co.



Above, floor plan of picker room showing manner in which lap conveying system operates. Operation is as follows: Before pickers are doffed, a sufficient number of lap carriers are pushed by hand from storage tracks F and F1 to doffing track A. One carrier is spotted in front of each picker. Lap stick is taken from carrier and inserted into lap pin in regular manner preparatory to doffing operation. As soon as picker knocks off, lap is doffed and placed on carrier. Operative then gives carrier a slight push to start it rolling. Carrier rolls by gravity to escapement I located on section B of track. As soon as lap carrier is released from escapement, it rolls to weighing section H. After lap has been weighed and found within tolerance, it passes on to section C of track, rolls by gravity to section D where it is picked up by booster and taken to inclined track to card room (photos on page 75). See opposite page for details of system in card room. Key to other letters on drawing: E, reject track; G, Printweigh head; J, reject head; K, motor activated reject switch; L, section of track where carriers are taken for repairs.

Photo courtesy, P. O. M. Co. and Werner Textile Consultants, Inc.



Left, view of photo-electric lap reject head (J in drawing above). Light and bell warn picker tender that substandard lap is on scale.

sired. The other pointer is a light beam interceptor, the width of which corresponds to the weight tolerance to be permitted.

On each carrier is an arm which activates a limit switch on the weighing section of the scale, permitting the lap about 10 seconds to come to rest before the weight is printed on a tape by the Printweigh head.

Rejected Laps. One of the first problems which had to be considered in the practical operation of the automatic lap weighing scale regarded the tolerance which could be permitted in the weight of the laps. The scale itself was in quarter-pound graduations. Vibration in a scale of this type is considerable and may be as much as one fourth pound. These facts must be considered when determining the tolerance for each individual installation. The width of the beam interceptor will have to be made to cover a space on the dial of the reject head equal to the tolerance.

When a lap on the scale fails to weigh within the tolerance, whether too light or too heavy, the beam interceptor does not cover the electric eye. This action prevents the limit switch from releasing the lap and at the same time it flashes a red signal light and rings a bell. As the scale is now operated, the picker tender must come to the reject head where he observes whether the lap is too light or too heavy; he then pushes a reject button which energizes the motor driven reject switch and releases the lap which rolls of its own momentum to the reject track.

When the lap is on this track, an arm on the carrier comes in contact with another limit switch which closes the reject switch and releases the lap which is waiting in the escapement.

Plans are now being worked out for colored signal lights to be located at each picker; one color for

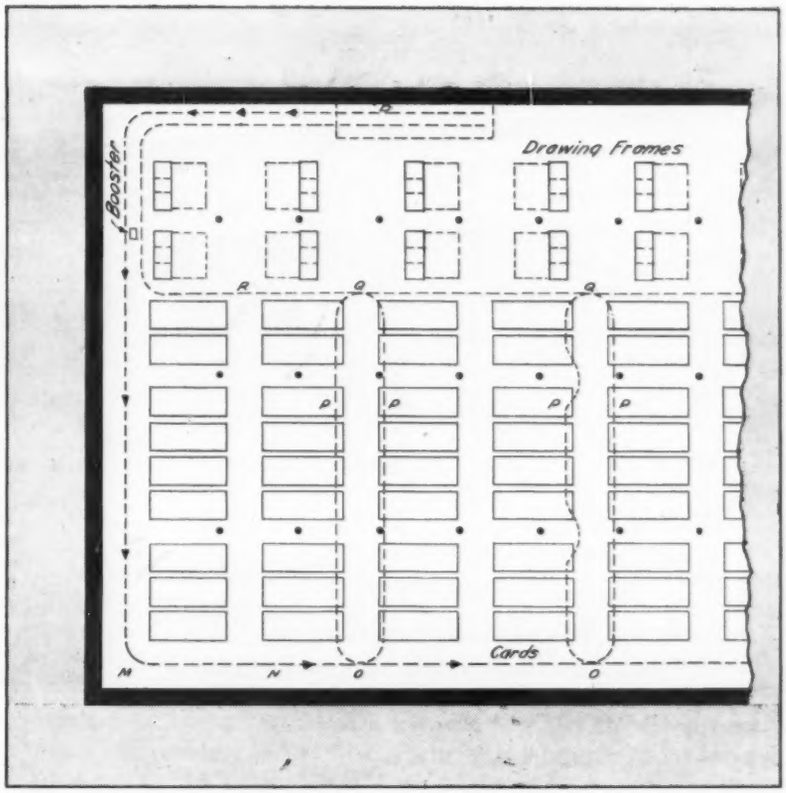
light laps, and another color for heavy laps. The picker that made the defective lap will show a signal light, and the light will continue to burn until the operative comes to the picker, makes the necessary adjustment, and presses a button.

Maintenance. Where any automatic machinery is used a certain amount of supervision and attention is necessary if the machinery is to work smoothly and efficiently. The carriers are numbered so that if one is found to be out of order, a note can be made of the number and instructions given for its removal from the track so that the necessary repairs can be made. The trolleys must be kept clean and must be greased periodically so that they will roll freely, otherwise they may not roll down the grades properly, thereby blocking the system.

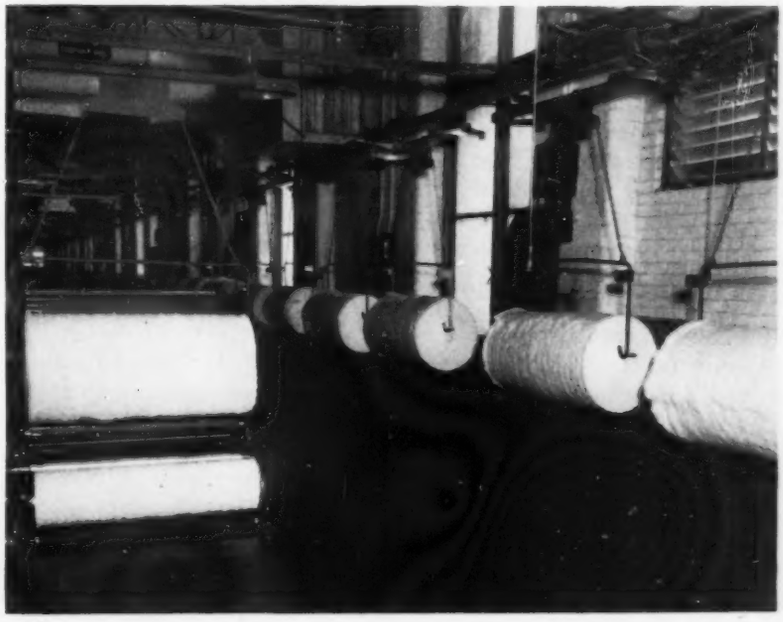
It is very important that all of the carriers weigh exactly the same for even a quarter-pound error would cause a lap weighing just inside the tolerance to be rejected. It is therefore quite obvious that when a carrier has been repaired it must be reweighed and the weight properly adjusted before it can be put back into service.

Perhaps most important of all is the proper training of all operatives who handle any part of the system. Any unnecessary slamming and banging of the carriers will cause undue breakage. Safety devices are provided at critical points to stop the booster in the event any part of the system becomes blocked.

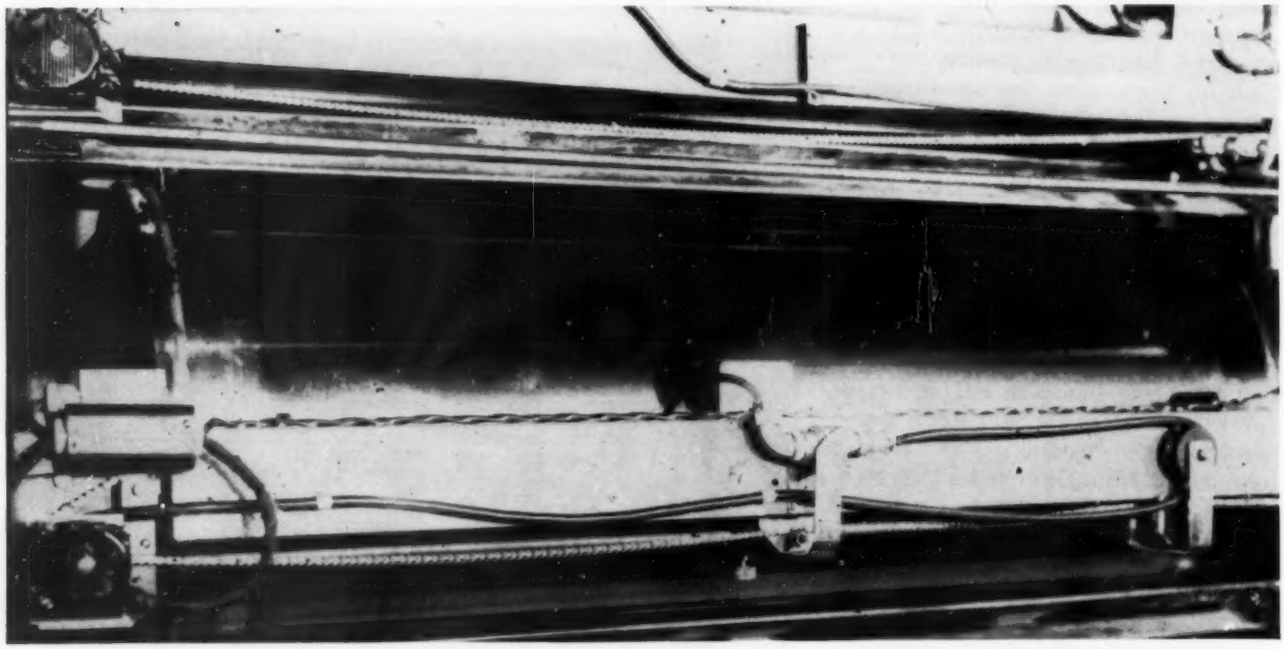
In addition to the labor-saving features of the lap handling system which have already been cited the making of larger picker laps is being contemplated thus increasing the efficiency of both the pickers and the cards since the system can handle 50 to 60 yard laps just as easily as it handles the standard length laps now being made.



Above, floor plan of portion of card room showing manner in which lap conveying system operates. Laps on carriers are brought up from picker room on floor below by booster up inclined track (see photos on page 75). Carriers are released from booster lugs when they reach top of incline and roll by gravity around curve M to section N which is the storage track extending the entire length of the card room (see photo below). When it is necessary to replenish laps on any group of cards, card tender opens switch O which is a double switch that permits laps to be moved from storage track N to either of the tracks designated P, each of which serves 9 cards. He then pushes 9 laps onto track P serving the proper group of cards (see photo on page 71). As soon as the laps have been laid on the cards, lap sticks are placed on carriers. Tender opens switch Q and pushes empty carriers onto track R where they are picked up by the booster and returned to the picker room.



Right, view of lap storage track (N in drawing above) in card room. Note lap in place behind card at left.



Close-up view of roll unit showing drive motor, carriage, and take-up. A guard protects the chain from damage.

A New System of Roll Temperature Measurement

By **JAMES D. ABBOTT**
The Kendall Co., Walpole, Mass.

THIS system of roll temperature measurement in the textile industry is said to eliminate differences caused by manual checking and recording, and frees operators for additional quality and process control. The design of this equipment and its perfection for operating conditions is an excellent example of mill and supplier collaboration to improve textile manufacturing conditions.

THIS is an account which describes the commercial installation of a new type of equipment for measuring the temperature of heated revolving rolls. The installation is one of the first of its kind and possesses some unique features that should be generally interesting to readers throughout this and associated industries where such rolls are used, as in can dryers or hot calenders.

The equipment represents the outcome of a long period of joint effort by development engineers both of The Kendall Company and The Foxboro Company, and is thought to be an ideal compromise between dependable performance and reasonable cost.

What the equipment does is to make a complete record of working temperatures, not only for each roll of a multiple roll machine, but for all points across the face of each roll.

Making the record requires five minutes per roll, and the recording cycle for the whole machine repeats automatically after the last roll is recorded. With all this complication, however, the entire record is complete on a single standard round instrument chart.

It is expected that interest may follow any one of several directions according to the individual reader, so this article is written to cover the subject from several different angles—historical background, general description, etc.

General Description. The installation comprises the following:

1. A Dynalog recorder, which indicates temperature directly as a function of electrical resistance.
2. One Model 7092 roll temperature measuring head for each heated roll. A specially arranged carriage, designed and built by Kendall Company engineers, traverses the head slowly across the roll face from end to end.
3. A selector switch unit, which connects each measuring head in turn to the recorder, at the same time starting the corresponding carriage drive motor.

Mechanical Operation. In operation, a recording cycle starts when head No. 1 is connected to the recorder and its motor starts. The traverse speed is such that the head moves from end to end of the roll face in five minutes. At the end of a 5-minute interval, No. 1 head is disconnected from the recorder, and the whole of the foregoing operation is immediately recommenced for the No. 2 roll.

Meanwhile, the No. 1 motor reverses and moves the No. 1 head back to its starting point, where it remains until the motor is started again by the selector switch. The recording sequence continues automatically until the last roll is recorded, at which time all heads are momentarily disconnected from the recorder. This causes the recorder pen to move off-scale and immediately return, making a mark which identifies the beginning point of each recording cycle.

The resulting chart shows a repeated series of "stair-step" patterns, each repeat of the pattern corresponding to one operating cycle. The horizontal portion of each "step" is the curve of temperature across the corresponding roll face; the vertical portion is the mark made by the pen moving abruptly from one temperature to another as the successive heads are switched in.

This latter mark is much more faint than the other one; this isolates the actual roll records from each other and makes it easy to read the chart.

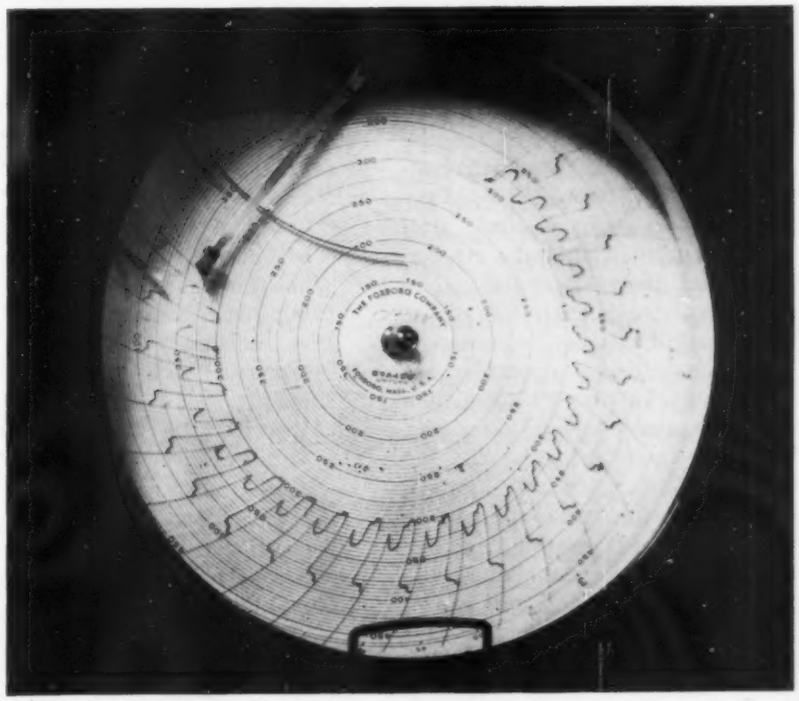
The accompanying photograph of the recorder shows a chart taken during a long test period during which no stock was run. The rolls were set at widely different temperatures, and other variations were deliberately introduced by air streams blowing on the rolls, etc., in order to demonstrate the overall performance of the equipment.

Principle of Operation. The sensitive element in each measuring head is a coil of selected resistance wire clamped in a holder of extremely light weight. (The element complete with holder weighs only 3½ grains.) When the holder is placed against the roll, the resistance wire quickly assumes the temperature of the roll face. Since the resistance of the wire is practically a linear function of its temperature, it is necessary only to measure this resistance in order to obtain an indication of the roll surface temperature.

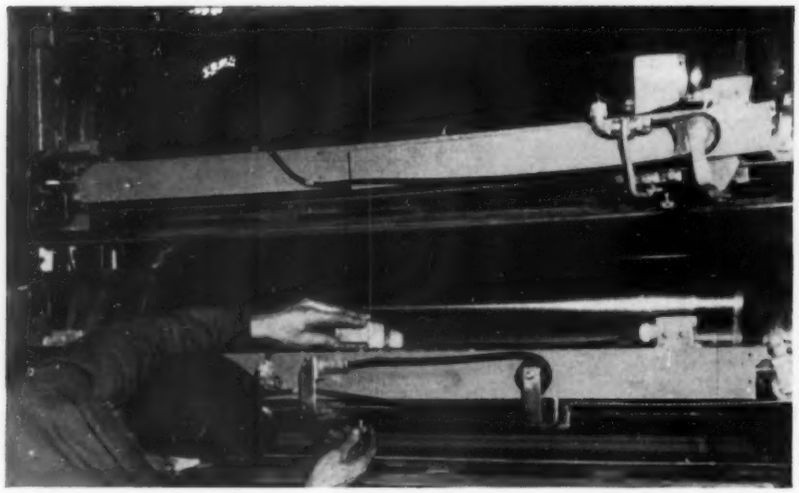
This measurement is performed continuously and automatically by the Dynalog recorder, which is completely electronic throughout with the exception of the pen motion and mechanical feed-back linkage. The resistance element is made part of a resistance—capacitance bridge circuit. Changes in resistance of the element unbalance the bridge. The unbalance is amplified, and the amplified output actuates the pen-positioning unit.

The use of a-c instead of d-c on the measuring bridge not only simplifies the amplifier requirements but permits the use of a small variable capacitor as feedback element, with consequent small size and simple construction.

Motion of the pen is transmitted to this capacitor, which is included in the bridge circuit. Pen motion continues until the bridge is balanced at the new resistance. Automatic compensation is provided for variation in resistance of the lead wires due to ambient tem-



This photo of the recorder chart was made during a long test period when no stock was run. The rolls were set at widely different temperatures, and other variations were deliberately introduced by air streams blowing on the rolls, etc., in order to demonstrate the overall performance of the equipment.



A mechanic demonstrates the ready demountability of a measuring head.

perature changes, and the range of the instrument can be altered at will by changing a set of resistors conveniently arranged for the purpose.

The complete equipment as described, with the exception of the traversing mechanism, is available from The Foxboro Company and is much more completely illustrated and described in their literature.

Story of the Development. The evolution of the present design began several years ago when members of the research staff at The Kendall Company undertook to investigate possibilities for more accurate measurement of the temperature of a revolving roll. No objective beyond the development of a laboratory type instrument was contemplated at the start.

Most of the effort was directed toward means to insure that the primary "sensing" element attained the true temperature of the roll surface; the research staff took for granted that the conversion from this temperature to a practical, visual indication could be accomplished by commercial equipment already available. The researchers finally attained their objective and evolved a satisfactory experimental instrument, but abandoned further development because by that time there were reasonably good portable indicating instruments on the market.

However, there was still a need for equipment to record, and possibly control, roll temperatures. Both Foxboro and Kendall agreed to collaborate in the development of a commercial unit, with a "sensing" element patterned after the Kendall design. Field tests were to be conducted on a machine in one of the Kendall plants.

Engineers installed a portable Dynalog recorder, and each successive design of sensing element was given extensive tests to determine its accuracy and speed of response. After these initial tests were complete, the element was left in place to determine how it would stand up under the usual rigors of production. After over a year of such experimentation, both parties agreed that the element appeared fully satisfactory, and immediate plans were made for a complete permanent installation on a Kendall machine.

Several problems had to be solved before the installation could be laid out, some of the more important ones being listed as follows:

1. Could a satisfactory record be obtained from a multi-roll machine on a single recording instrument, or would it be necessary to provide a separate recorder for each roll?
2. Would it be possible to obtain readings at several points across a given roll face, without providing a complete recorder, or at least a separate element, for each point?
3. Could the equipment be applied to control, as well as record, temperatures?

Suffice it to say that satisfactory solutions were worked out for the first two of the foregoing. As for control, we found during the experimental trials that the operators achieved excellent control by hand manipulation of heating units, and so we decided to go ahead with simply recording at first, using the records to work out the constants of a control system if that should prove desirable later on.

(At the time of writing, at least one application of the commercial equipment has been made elsewhere to roll temperature control, on a slightly different type machine.)

Design Considerations. The critical point in the chain of conversion of roll temperature to recorder-pen position is the temperature of the resistance element in relation to that of the roll face. The actual temperature of the element is the resultant balance of co-efficients between (1) heat input, by contact from the roll, and (2) heat loss, by radiation and convection, plus conduction through the supporting structure. A prime design consideration was therefore to secure the smallest possible ratio of loss to input co-efficients.

Another prime consideration is speed of response. This is achieved by making the sensitive element as light as possible in weight. However, with such a lightweight element the effect of its supporting structure on the heat loss must be carefully considered, since it may be readily demonstrated that putting a relatively large mass of insulation around a small hot body may actually increase its heat loss to the surroundings. Considerable experimentation was necessary to determine the optimum design of element supporting structure, to

achieve maximum speed of response without sacrificing accuracy.

A third and important consideration is continuous operation. This imposes a requirement that the element must have reasonable service life under conditions of continuous frictional wear; yet it must not mark or score the roll, since that would injure the appearance of the finished product. For continuity of dependable service, any components which may possibly get out of order through accident or otherwise, should be quickly and easily replaceable (during production if necessary).

Mechanical Construction. The sensitive element in the Model 7092 head presents a hardened surface to the roll face, but under very low spring pressure (of the order of a few grains). In order to minimize heat loss, the element is enclosed on all sides by a face-plate of heat-resisting, low friction material shaped to fit the roll, and held against it by light spring pressure. By this design, the weight of the element supporting structure is spread over a relatively large area of low friction, while the element spring pressure need be only sufficient to maintain thermal contact with the roll. Thus wear on the roll and wear on the element are both practically negligible, resulting in long service life.

The element is mounted on an insulating block, which in turn is clamped to the face-plate with a latch-type clamp that may be quickly loosened for replacement of the block and element. Replacement is a matter of seconds.

The enclosing box is patterned after a standard conduit fitting, which makes for reasonably small size and permits latitude in arranging mountings to fit a particular installation. It is faced with two strips of the low-friction material, which keep it at a fixed distance from the roll. The face-plate floats freely between them, supported by four coil springs; this construction allows for slight inaccuracies in mounting the box and permits the face-plate to fit the roll snugly.

Photographs by Arthur W. Kittredge and the author.

Traversing Mechanism. The Kendall-designed traversing mechanism comprises the following:

1. The carriage, which carries the measuring head back and forth across the roll face at a pre-determined rate. It is mounted on a supporting slide attached by suitable brackets to the machine frame.
2. An endless chain to drive the carriage.
3. A special motor to drive the chain. This is a reversible, synchronous, geared - head unit made by the Bodine Mfg. Company. The geared - head construction permits the chain drive sprocket to be mounted directly on the output shaft, and the reversible feature eliminates the necessity for complicated mechanical reversing gear.
4. A take-up for the loop of cable which runs from the measuring head to the machine frame and thence to the recorder. This take-up is necessary because the loop is necessarily of varying length, yet it must be kept out of the way of apparatus underneath.

For easy maintenance, each measuring head is arranged so that the maintenance man can remove it from its carriage, examine, clean, and replace it in a matter of one minute or less. Should anything happen to any of the traversing units, the entire assembly, including the drive motor, can be dismounted from the machine as a unit by breaking electrical connections and removing four bolts. It can then be carried to a convenient bench for repairs. All of this can be safely done without interrupting production.

Final Considerations. Already the new roll temperature unit is proving valuable in assisting operators to maintain proper roll temperatures. We find in particular that slow drifts (of the order of 5°F per hour), which often escaped notice with hand-held pyrometers, are readily apparent from a glance at the chart. Without question the intermittent series of temperature curves obtained from these charts are much easier to interpret than the equivalent record which might be obtained by, let us say, six separate equipments for each roll; the fact that the records were continuous would be more than offset by the necessity of having to read (and remember) six charts at once, not to mention the prohibitive capital cost of such equipment.

At the present writing, we are in the process of transition from the currently used equipment, using this equipment for control while building up a record from the new unit. This is to avoid possible errors of misinterpretation on the part of the operators before they become accustomed to the new charts.

We expect that if the operators are given a chance to compare the new charts to already familiar records, there will be less chance that the transition will be marked by a sudden change in product characteristics. At the same time, we are checking the behavior of the equipment in service in order to set up the maintenance schedule necessary for continued reliability. As far as we know, this is the only installation of its kind with moving heads, and we prefer to study it thoroughly before placing complete dependence on it.

However, we feel that the equipment has few remaining "bugs." Its advantage of eliminating differences among operators, heretofore reading and recording by hand, is obvious. It can be read quickly and accurately.

Our operators, freed from the time-consuming duty of recording temperatures, will have more time for inspection and process control; it is here that we expect the equipment to show up to greatest advantage.

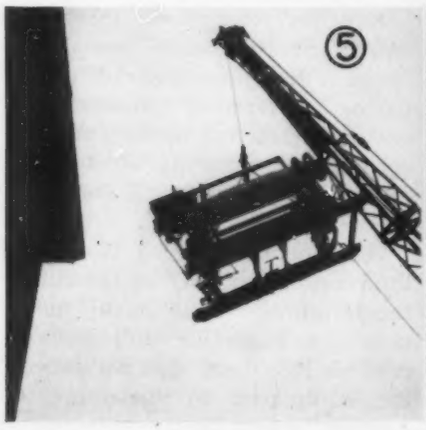
Crane Lifts Looms to Third Floor

MOST weave rooms are located on the first floor of the mill building. However, in some instances it is necessary to move or replace looms located on the second or third floor.

Raycrest Mills, Pawtucket, R. I., has a number of looms located on the third floor of the building. With the exception of relatively new buildings, few textile plants are equipped with industrial elevators of sufficient size to handle heavy equipment. The handling of looms when it is necessary to move them out of the third floor weave room, or when new looms are being installed, could create a problem.

At Raycrest Mills there is no problem in handling or moving looms. The accompanying pictures, made by Franklin C. Wertheim of Abbeon Supply Co., Woodside, N. Y., show how new looms are received by truck and unloaded on the third floor through the windows in one operation.

Pictorial presentation of method by which looms were lifted to the third floor at Raycrest Mills. Photo No. 1, truck load of looms arrives in mill yard. (2) Motorized mobile erecting crane moves into position to remove looms from truck. (3) Riggers attach cable and sling securely to loom frame; note that looms are mounted on skids. (4) Crane lifts loom slowly to prevent jerking when slack is taken out of cable. (5) Crane boom is swung to position opposite third floor window through which loom will be deposited; note control line attached to loom to prevent loom swaying at high altitude. (6) Boom is lowered and loom placed in position so that skids will line up with runways of ramp at window. (7) Loom disappears through open window down ramp to floor.



Profits from Accident Prevention

By E. S. GREENE

Supervising Engineer, Southeastern District
Aetna Casualty and Surety Co.

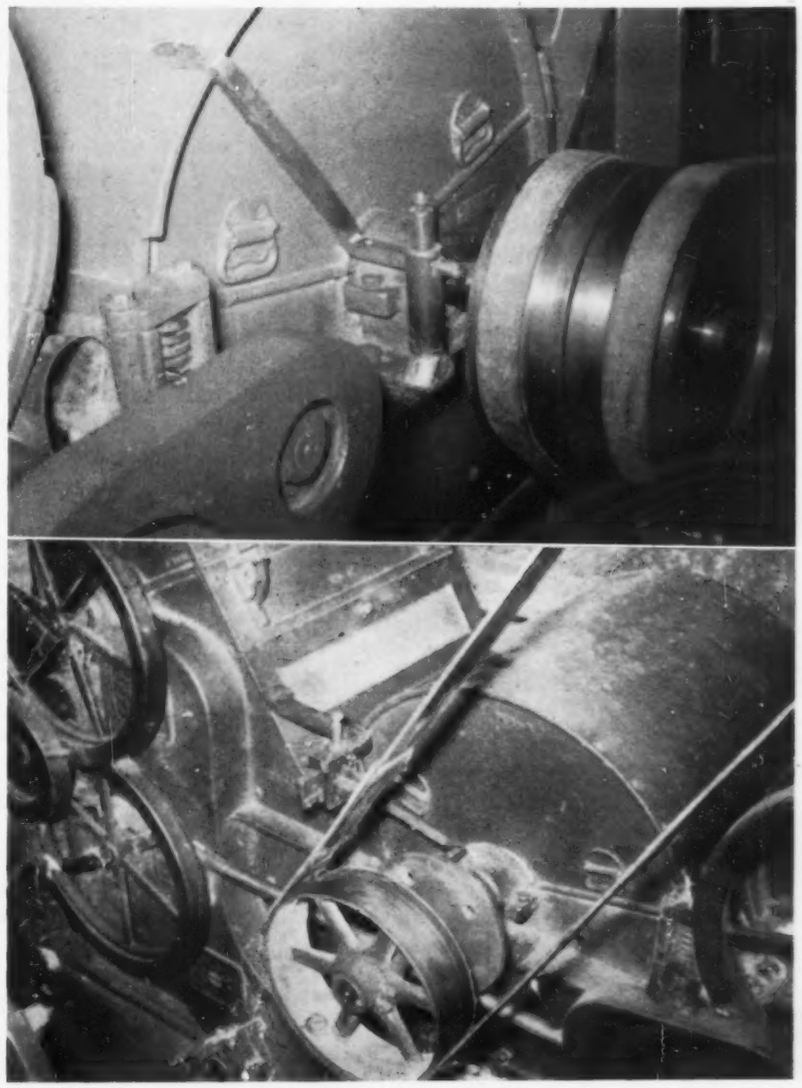
Accidents are expensive—practically all accidents are preventable—prevention of accidents is profitable.

HOW MANY *SAFETY FIRST* signs are fastened to the walls and columns in your mill? Does anybody read them? Does everybody heed them? Do you suppose it's because people don't want to be safe, or do you suspect it's because *SAFETY FIRST* is just about worn out as a safety slogan, and because it means so much that it doesn't really mean anything.

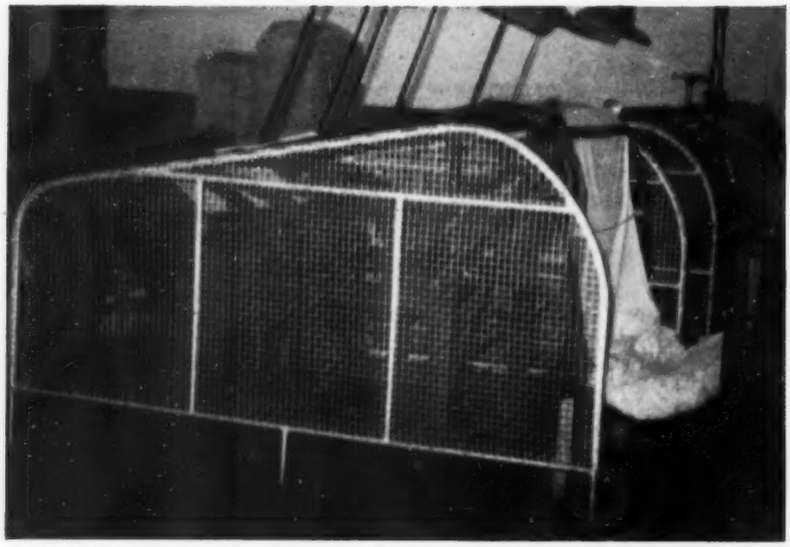
Personally, I do not believe in *SAFETY FIRST*. No, I do not believe in *safety first*—I believe in something a great deal more practical—something much more acceptable to industry at large. I believe in *CONSERVATION* — the conservation of life, limb, materials, machines, and finished products. Why do I hold this belief? Simply because it pays off. It pays off in lives, limbs, materials, machines, and finished products that are not destroyed or mangled beyond further usefulness. It pays off in dollars and cents!

Safety Director's Job. You who have the responsibility of Safety Director in your plant, either full-time, part-time, or perhaps just in your own department, have one very important job to do. Unfortunately, it is probably your most difficult one. Your job is that of selling. You have to sell not only to those who work under you, but also to those who work over you. If you try to sell the foreman or overseer a set of "Safety Rules," you are likely to hear five thousand reasons why they won't work, and why they will interfere with production. On the other hand, if you try to sell him the same idea, and show him how it will conserve time, energy, and even life and limb, no one is likely to object?

Suppose you try to sell executives in your organization the idea of installing interlocks on all the

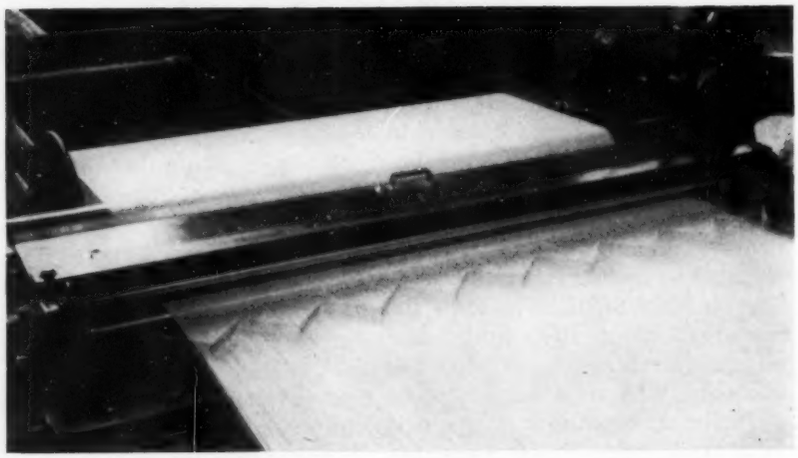


Home-made beater locks as shown here may prove invaluable in a good conservation program.



Left, barrier guard installation on folding machine protects operatives from moving parts.

Below, hinged cover for take-up or drag rolls on slasher serves as an aid in preventing accidents.



pickers because interlocks will make them safe, and as Safety Director your motto is "Safety First." Well, the answer will depend to a large extent not on you, but on your executive. He is in a position to give you some very good reasons why the expenditure you request is not feasible, based on the relatively weak argument you presented.

Suppose, however, you present a clear-cut sales talk based on conservation. You start off by saying that it is cheaper to operate with interlocks than without them. Interlocks will result in a conservation of limbs, raw materials, and machinery that is not possible with the pickers running in their present condition. You give him an estimate of the cost of the interlocks. You compare that figure with the cost of a hand amputated in a picker, and tabulate such items as:

Weekly compensation payments.
Disfigurement cost.
Medical costs.
Lost time of injured employee.
Lost time of other employees who stop work to help the injured employee.
Lost time of employees who stop work because of sympathy or morbid curiosity.
Lost time of at least two other employees who carry the injured man to the hospital.
Lost time of employees who faint at the sight.
Lost time of still other employees who have to revive those who fainted.
Lost time of the foreman, overseer, superintendent, and other executives who have to investigate the accident.
Lost production of the picker.
Lost production in any other department depending on that picker.
Lost production for several days due to upset, shock, and conversation concerning the accident.
Lessened effectiveness of the one-handed employee upon his return.
Legal expense, court fees, expense of preparation of case, settlements, and judgments, in the event the case is contested in court.
If your employer carries compensation insurance, his rate is increased.
If your employer carries his own insurance, he pays all these costs immediately, and they come out of his own cash register.

And Then He Does Install. When you present such an argument, what executive is going to look for reasons to let you down easy? He is more likely to say, "If these interlocks are going to save us so much money, why haven't you put the darned things on long ago?" You then have the answer you want, and you haven't had to mention the time-worn "Safety First" even once. You have argued in terms of conservation, and your executive has interpreted your ideas in terms of profits.

Many times we have been told that, "Self-preservation is the first law of humanity." When I drive my car on the highway and see the chances some of the drivers take, and when I walk through a sawmill and see how unnecessarily

close some of the men approach the large unguarded saws, I doubt it. When I ride the elevator in one of our older cotton mills, and see how some of the folks jump on and off the platform while it is in motion, I doubt it. In fact, I sincerely doubt that self-preservation is the first law of humanity. I do believe, however, that I am my brother's keeper. I believe that accident prevention has to be approached, not along the comparatively narrow path of self-preservation, but along the broad highway of conservation.

Before we can hope to sell the employee on working safely, we have to show him how he will profit thereby.

Accident Costs. The main driving force behind the industrial safety movement is the fact that *accidents are expensive!* We have a very good argument to support this statement.

First: Practically all accidents are preventable.

Second: Accidents are expensive.

Third: The prevention of accidents will save money.

The argument is effective on employee and employer alike, because it definitely applies to both.

Probably no one has the same excellent opportunity that the professional safety engineer has to see just how accident prevention pays off. A typical example is the engineer who is employed by a large insurance company and who has the privilege of working with various industrial and public utility organizations year after year, assisting, advising, and studying their progress. Our records show numerous instances of large financial profits realized by those of our clients who were sold on the idea of a conservation program. Presented here are a few actual examples of profits from accident prevention.

Profits Revealed. A cotton mill in Georgia experienced an average of 20 accidents per year before they installed a workable plan. After three years of study, their number of accidents decreased to only one per year.

Another manufacturing plant had an average of 25 accidents every month. A program of conservation engineering was started in May. By November the number of accidents was reduced to 3 per month, and there was evidence of continuing reduction.

A plant producing metal tubing had 32 accidents per quarter. After the fifth quarter of conservation, the number was reduced to 4 accidents per quarter.

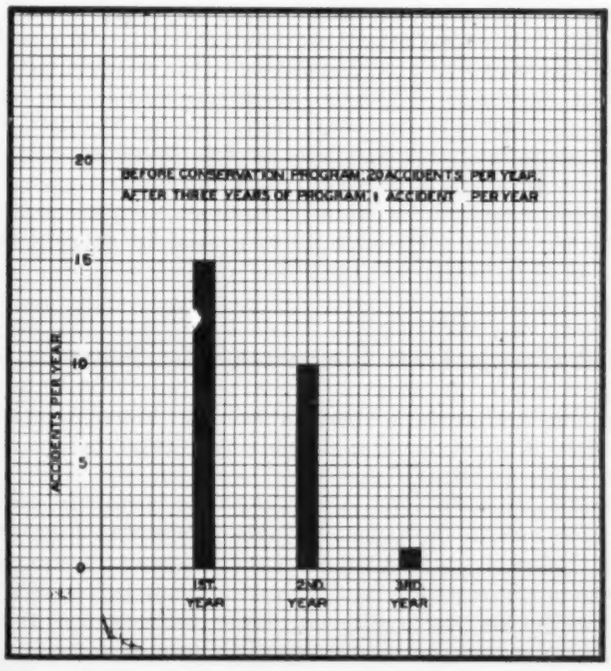
A plant engaged in the manufacture of electrical accessories, had accident costs amounting to $1.10 per employee. After four years of conservation work, the cost was down to eight tenths of one cent, and production was not curtailed at any time.

At another plant, a conservation program was started when management had to pay an insurance rate that was 120% higher than average. After nine years, the program had reduced the rate to 62% of the manual rate, or 38% less than that particular industry would expect to pay for their compensation insurance.

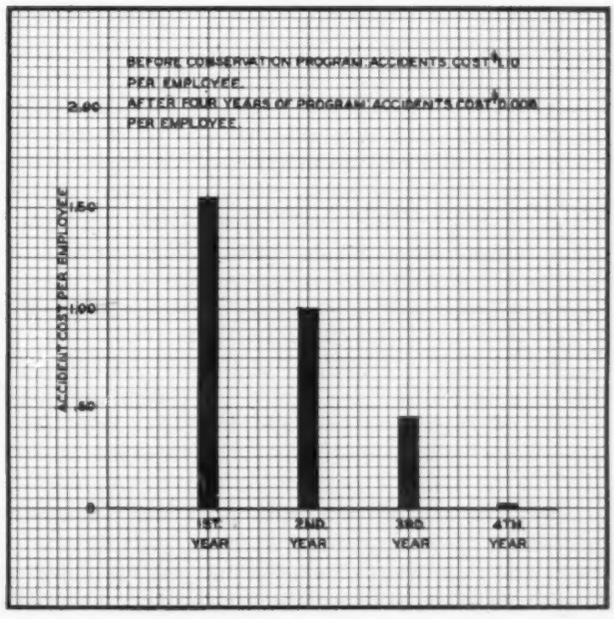
Return Premiums. Earlier this year, as the result of their excellent conservation work, a $10,000 premium was returned to a sheet metal plant. That represented 43% of their total premium, and is an indication of the profits to be accrued from accident prevention.

Last January the executives of a chain of textile mills in South Carolina were handed a check for $26,000—not because it was right after Christmas—not because we felt generous, but simply because conservation paid off. It pays off

Chart showing experience of a Georgia cotton mill that made a study of accidents and their causes.



After a period of four years, a plant manufacturing electrical accessories reduced its accident costs from $1.10 per employee to .8 of one cent per employee.



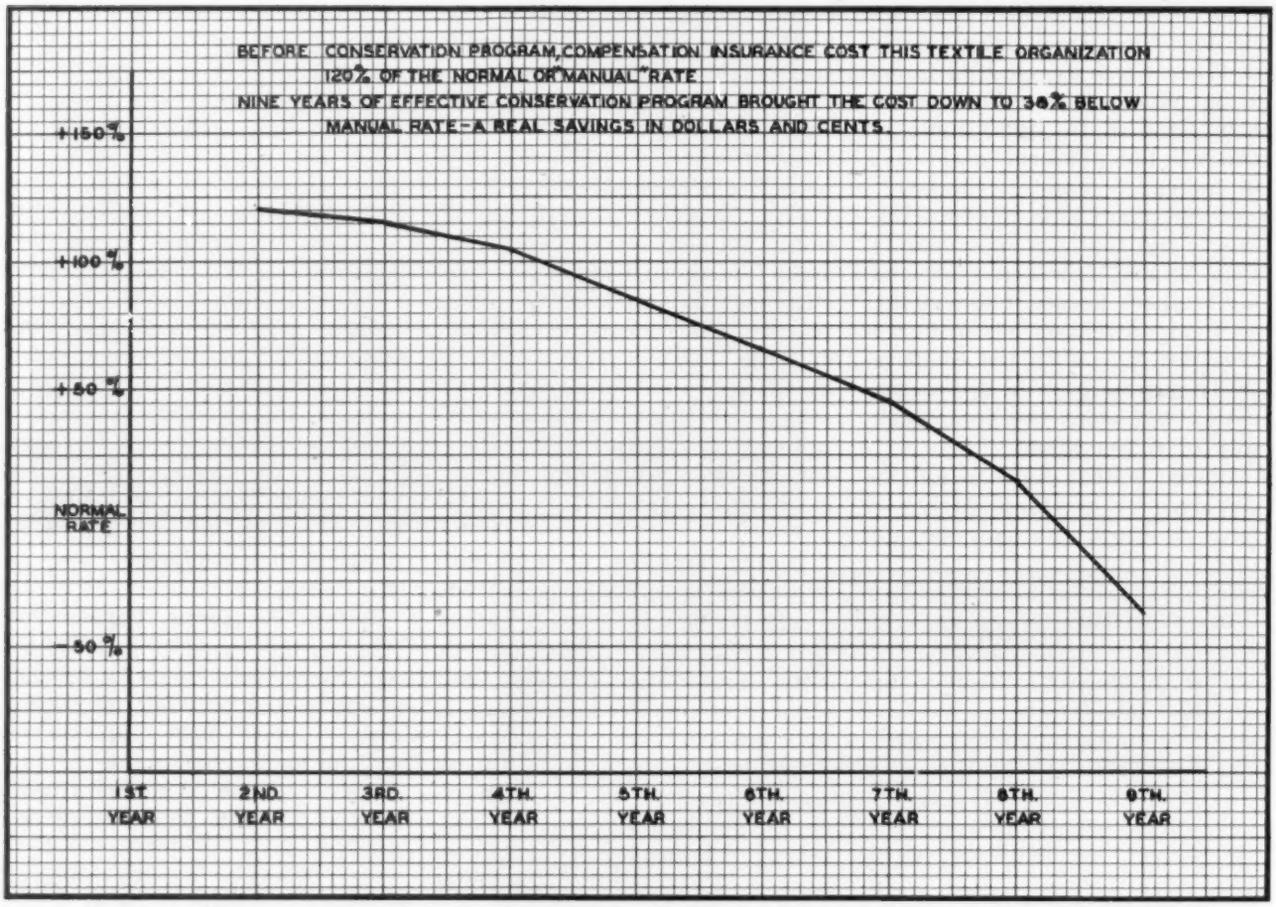


Chart showing how a nine-year conservation program paid dividends to a large textile organization.

in dollars and cents, and it pays off in other ways.

Let us assume that mechanical safety devices have been installed at every danger point you can find in your plant. The dollar cost of accidents is noticeably less, and it is obvious that countless operatives have been spared the hardships accompanying accidents. You can't count the number of fingers, hands, arms, and legs that have been saved, but you do know that employees are going home to their families, shift after shift, week after week, with whole bodies, with all toes and fingers present and accounted for—all because of your success with conservation. That knowledge, Mr. Safety Director, is *your* profit.

The executive staff studies the costs and reviews statistics. It is part of the safety director's job to prepare the data on accidents and present it to management. It has been said that figures don't lie, but there are exceptions to the rule. Today management is harder to hypnotize with a showing of razzle-dazzle figures and charts. They can ask some very pointed questions, and they don't want alibis. There is no place today for the pencil-pusher type of safety director—full time or part time.

Every plant needs a conservation program that will show results in dollars and cents—dollars saved for employees who draw full salary instead of just compensation. Dollars can be saved for the employer because of reduction of costs made possible by the use of safer methods; because of increased production, improvement of product, reduction of waste, improved morale, and reduced insurance costs.

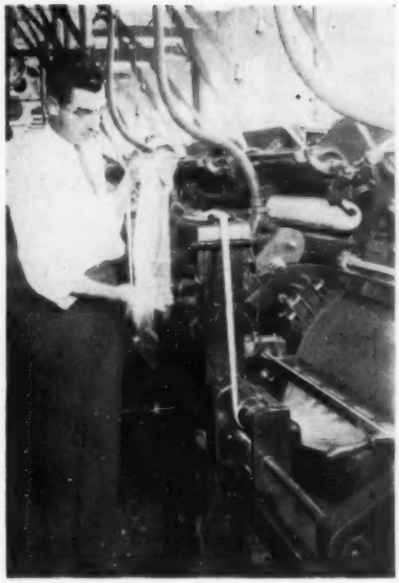
It is evident that material profits are available to the safety director, to the employee, and to the employer. Some profits are too intangible or too great to permit measurement in terms of cash value. The most obvious profits may be expressed in dollars and cents.

200 Exhibitors for Greenville Show

All of the available space for the 15th Southern Textile Exposition has been taken, and two hundred exhibitors will display their products when the show opens the week of October 4, in Greenville.

This will be the first textile show to be held in Textile Hall since 1941. War conditions and inadequate housing prevented the exposition from being held since that time.

As has been the custom in years past, TEXTILE INDUSTRIES magazine will carry a preview of the show in its September issue, along with a directory of exhibitors and their representatives to attend.



Carding Rayon Staple

By H. T. GILBERT
Athens (Ga.) Manufacturing Co.

EXCLUSIVE

Types and lengths of rayon staple necessitate deviating from standard settings, procedures.

IN CARDING rayon staple, those who are familiar with the carding of cotton should keep in mind some of the characteristics of rayon fibers as compared to those of cotton. First, the individual rayon fiber is more nearly circular in cross section, and generally speaking, has a smoother outer surface than the average cotton fiber. Another important item to consider is the staple length of the fibers. Most of the rayon staple is cut to a length of 1½ inches, but there is an increasing demand for longer staples.

Another characteristic worthy of consideration is the strength of the individual fiber. It is generally acknowledged that the rayon fiber is more easily broken in processing than the average cotton fiber of comparable size, and it is important to keep this fact in mind in considering the carding process as well as the opening and picking. It is also important to remember that the rayon staple does not contain the leaves, motes, and other foreign matter usually found in cotton. Therefore, the primary function of the rayon card is to separate the individual fibers and prepare them properly for further processing.

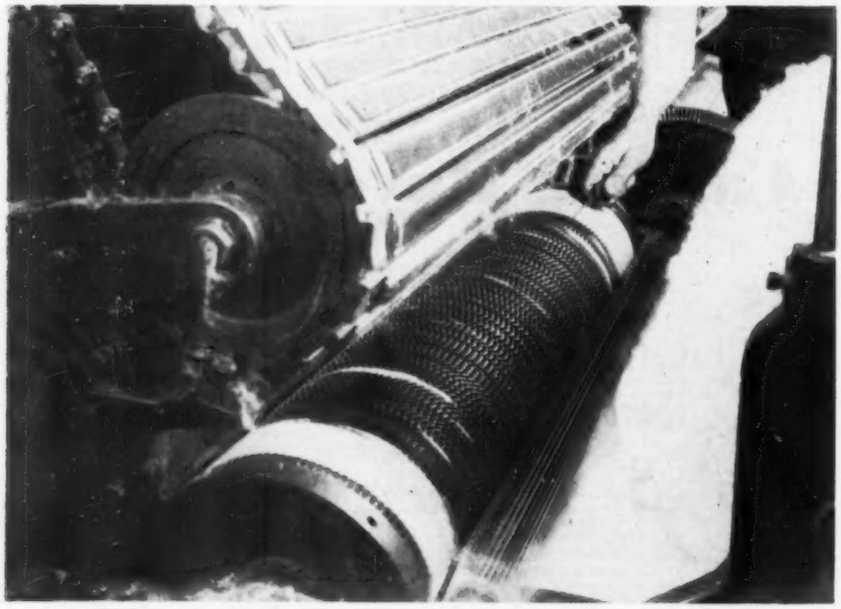
It is not the purpose of this article to set forth any hard and fast rules or procedures. There are a number of different types and lengths of rayon staple which make it necessary to deviate from any standard settings or procedures which may be in use. Certain settings which work nicely on one card may not do as well on another. However, there are some general principles and practices common to all the rayon fibers which should be carefully considered by the mills which process staple rayon.

To those who are not familiar with the terms 1.5 denier, 3.0 denier, etc.; these terms simply indicate the size of the individual fibers; the 1.5 denier staple being approximately equivalent to the average upland cotton, and the 3.0 denier twice this size, etc. Both the denier and the staple length have an important bearing on the carding process. If we are carding a 100 per cent 1.5 denier, 1½-inch rayon staple, there are only two thirds as many fibers in a given unit weight as compared with a similar unit weight of 1-inch upland cotton. If we use 100 per cent 3.0 denier, 1½-inch rayon, there are only one third as many fibers in the given unit weight as compared with the cotton.

Feed Roll and Feed Plate. Most carders who have had experience with the longer staple cottons will agree that this type of stock has more of a tendency to be plucked or jerked into the card by the licker-in, with consequent damage to the clothing. Staple rayon is very similar to the longer staple cottons in this respect, so the feed roll flutes should be kept in good condition, and there should be no excessive lost motion in the journals and bearings. It has been a practice in some rayon mills to increase the weight on these rolls, and some of the machinery builders have incorporated heavier roll weights on new cards which have been especially designed for rayon.

The conventional feed plate has been found to be satisfactory for carding 1½-inch staple, but the setting of the feed plate should not be as close on rayon as on cotton because of the longer staple. A good setting for 1.5 denier, 1½-inch staple would be .012-inch, but on longer staple or finer denier, a more open setting would be desirable.

The Licker-in. The importance of the licker-in on the carding of rayon cannot be over emphasized. This holds true for cotton also, but



Loading of the licker-in can be a serious drawback to production. Low places on the licker-in clothing and excessive speed are both frequent causes of loading of the licker-in.

there are a number of troubles caused by defective lickers-in which show up quicker on rayon than on cotton. First, the speed of the licker-in should be reduced when changing from cotton to rayon. This is entirely plausible, because there are less fibers to handle in a given unit. It is also reasonable to assume that excessive speed will have a tendency to break some of the fibers, because they are longer and more brittle than cotton.

There is a great deal of variation in licker-in speeds from one mill to another on rayon; the range varies from a low of 165 rpm to a high of 425 rpm, depending on the different types of rayon, different length staples, etc. The writer feels that any speed above 375 rpm is definitely detrimental to the stock. On the longer staples and finer deniers, it should be much slower.

Another factor which accounts for some of the variations in speeds of lickers-in is the condition of loading—that is, the staple sometimes clings to, or loads on the wire of the licker-in. This condition is more prevalent on some types of rayon than others (especially the longer staples) and is sometimes difficult to overcome. In this instance, reducing the speed of the licker-in is always beneficial, provided the wire is in good condition; that is, sharp and free from burrs and rough places. The manufacturers have designed a wire especially for rayon which has a larger angle at the point of the wire than that used for cotton. The use of this wire is well worthwhile, if it is definitely known that the cards will be on rayon continuously, but excellent results can be obtained with cotton-type wire if proper care and attention are given.

Mote Knives and Screen. There is no appreciable amount of trash or foreign matter in rayon staple, so there is no need for mote knives in the carding of rayon. A plain piece of solid sheet metal can be substituted for them. However, by backing off on the knives and setting them at an angle away from the wire, the amount of stock lost at this point can be reduced to a negligible amount, and it is doubtful if the saving effected by replacing the knives can be justified. There are some short fibers which will drop out between the grids of the screens, but these should be taken out, because to allow them to remain in the stock would be detrimental to the quality of the finished yarn.

These short fibers are caused from reworking the waste, and also from a small amount of breakage on the picker. There are some types of blends where the loss of stock at the mote knives might be appreciable; these are the nub blends for shantung filling yarns, or a linen type blend, which includes a mixture of long fibers and extremely short fibers to give an uneven, linen-like yarn. For blends of these types, the stock which is lost at the mote knives can be fed back in at the opening process. On any rayon blend, it is well to set the mote knives ⅛-inch away from the licker-in, and at as great an angle away from the licker-in as the brackets will permit. The cylinder screen can be set as follows: Front ¼-inch, middle .034-inch, back .022-inch.

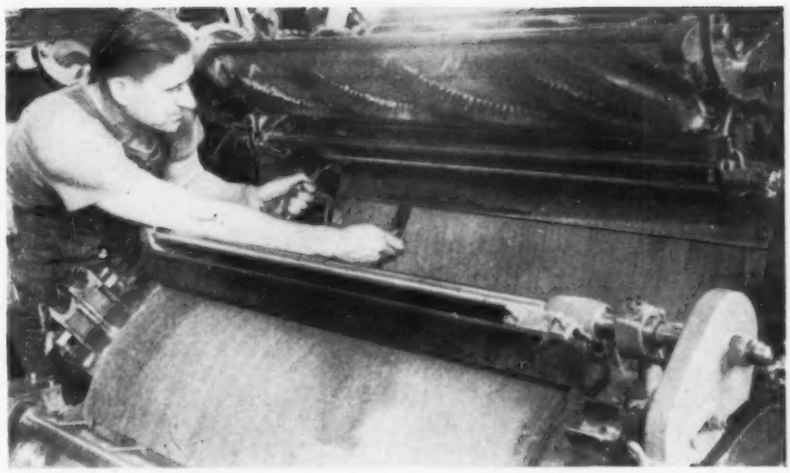
Cylinder and Doffer Wire. It is just as important to have the cylinder and doffer clothing in good shape for carding rayon as it is for cotton. In fact, clothing which is hooked or otherwise in defective condition, can have even more disastrous effects on the quality of the finished product. On blends of acetate and viscose staples, where the finished product is cross dyed, (the viscose is dyed

LICKER-IN CLOTHING FOR RAYON

LICKER-IN CLOTHING FOR COTTON

one color and the acetate another color, or the viscose dyed and the acetate left white), neps in the finished goods can be very objectionable. These neps are usually in the finer staple, and after the goods are dyed, they stand out like a sore thumb.

On some of the plain dyed cloths, these neps are quite as objectionable, but in all cases, the better the carding, the better the yarn. As for the size of the wire, 100s on the cylinder and 110s on the doffer and flats are well suited for 100 per cent 1.5 denier, or on blends of 50 per cent 3.0 denier and 50 per cent 1.5 denier. For the coarser staples (3.0 and 5.0 denier) 90s on the cylinder and 100s on the doffer and flats give better results. On the 1.25 denier, 110s and 120s will give the best results.



Checking the front stripper plate on a card processing rayon staple.

Cylinder, Doffer, and Flat Strips. In most rayon mills, it is customary to strip the cylinder and doffer once every four hours. Stripping can be done either by roller or vacuum. Some of the nub blends and linen type blends mentioned previously require more frequent stripping, due to the fact that the nubs and extremely short fibers tend to load onto the wire faster. The frequency of stripping depends upon the quality requirements, but on straight rayons and simple blends, once every four hours should be sufficient.

The amount of flat strips taken out on rayon stock should be reduced considerably from the amount taken out on cotton. Since there is no foreign matter in the rayon staple (except in rare instances), the question may arise—why take out any flat strips at all? The answer to that is the problem of removing the neps. The proper action and setting of the flats has an important bearing on this problem.

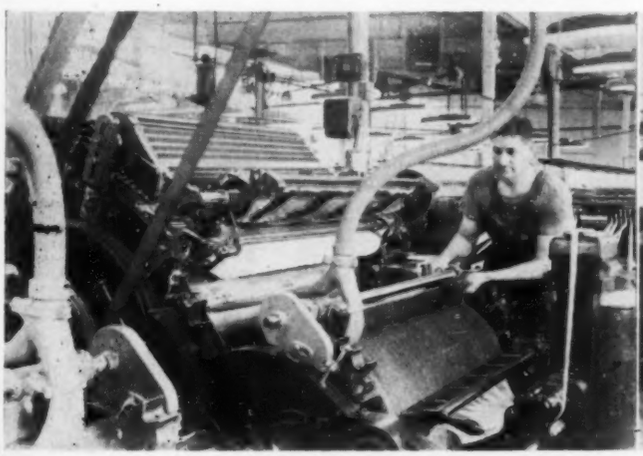
One of the rayon manufacturers states that neps are created with each passage of the stock through a beater, even if conditions are ideal. The flats are the last chance to remove these neps. It is good practice to reduce the speed of the flats to approximately half that customarily used on cotton. Some mills go even lower than that, but this can be determined by local conditions.

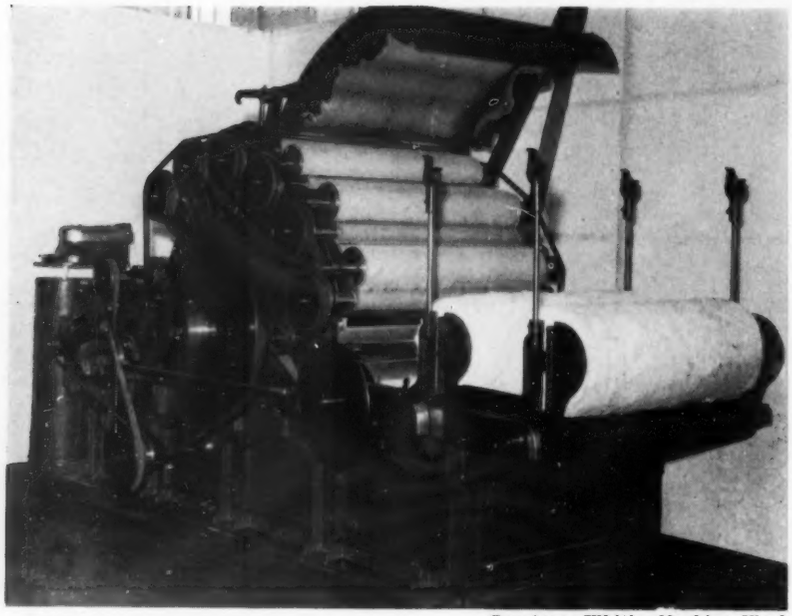
It is also desirable to set the top of the front plate closer than is customary on cotton in order to reduce the amount of strips. A good setting at this point is .015-inch to .019-inch. Bottom edge of bottom plate should be .022-inch.

The setting of the flats themselves should be determined by the denier of the staple being run. For the finest deniers, it is recommended to set the flats to .010-inch, or slightly closer if neps are in evidence, and the condition of the card will permit. On the medium deniers (1.5 and mixtures of 1.5 and 3.0), a good setting would be .012-inch, and on the coarse deniers (3.0 and 5.5), the setting should be .015-inch. On some of the nub blends, the flats are backed off much farther than that, in order to keep from carding out too many of the nubs.

Reworking the Strips. In most rayon mills today, all of the strips (both flat, cylinder, and doffer) are fed back in as reworkable waste. It is desirable to do this on wool blends and blends containing a mixture of various deniers,

Left, checking doffer for excessive neps. **Right, operation of traverse grinders is examined.**





Courtesy, Whitin Machine Works

A roller top type card for processing staple rayon.

because a higher percentage of coarse fibers always comes out in the flat strips. In mills running some of the finer deniers for high count, high quality yarns, the strips are made into a lap and re-carded before being fed back into the stock at the picker as reworkable waste. This practice has proved entirely satisfactory in a number of fine goods mills, but is not necessary for medium or coarse numbers. The fact that strips can be reworked, plus the lower all round waste factor of rayon staple gives it quite an advantage over cotton in this respect.

The Roll Top Card. Before leaving the subject of flats and strips, it might be well to compare briefly the roll top card with the flat top card. The roll top card for rayon is a fairly recent development, the idea coming from the woolen card. This card is very similar to the flat top card, the main difference being that a series of rolls (covered with clothing) called workers and strippers are substituted for the flats.

One manufacturer uses five pairs of these rolls, while another uses three pairs. The worker rolls revolve at a moderate rate of speed and take the stock from the cylinder in much the same manner as the doffer. The stripper rolls are smaller, and revolve at a higher rate of speed, stripping the stock from the workers, and returning it to the cylinder. This action is repeated through the series of rollers from the back to the front of the card. There are three main advantages claimed for the roll top card:

1. Higher production.
2. Better blending of the fibers.
3. No flat strips.

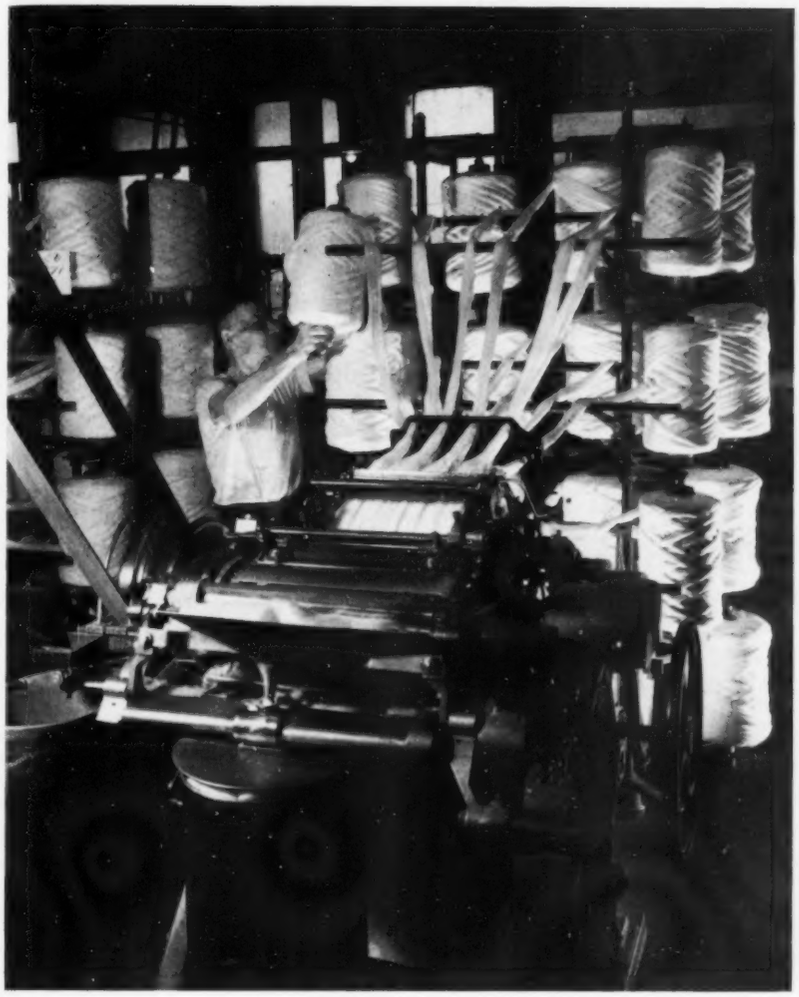
Production as high as 20 to 30 pounds per hour has been reported by some users of these cards on coarse deniers, but here again, the quality requirements must be the determining factor, and if the card is pushed to the limit, quality is bound to suffer. However, it is certain that the roll top card will give a much higher production on certain blends than the flat top card. It is certainly reasonable to expect a good blending action from the transfer of the fibers from the cylinder to the workers to the strippers and back to the cylinder again.

The fact that there are no flat strips on the roll top card indicates one of its weaknesses—it is definitely not suited to the carding of fine deniers or a stock in which neps are objectionable. Some of the manufacturers recommend that no stock finer than 3.0 denier should be run on them, while the flat top card will handle anything from the finest to the coarsest. To summarize: if a mill contemplates running on medium and coarse counts of rayon, the roll top card should be considered; if it must be flexible enough to run fine, medium, and course counts, the

(*Continued on page* 173)

SUGGESTED CARD SETTINGS

	1.25 Denier 1⅞" Staple	1.5 Denier 1.5" Staple	1.5 Denier 2" Staple	3.0 Denier 1.5" Staple	3.0 Denier 2" Staple
Feed Plate to Licker-in	.022	.012	.017	.015	.022
Mote Knives to Licker-in	.125	.125	.125	.125	.125
Cylinder to Licker-in	.007	.007	.007	.007	.007
Bottom edge of Back Plate	.017	.017	.017	.022	.022
Top edge of Back Plate	.022	.022	.022	.034	.034
Licker-in to Cylinder	.007	.007	.007	.010	.010
Screen to Licker-in	.022	.022	.022	.022	.022
Screen to Cylinder, Back	.022	.022	.022	.022	.022
Screen to Cylinder, Middle	.034	.034	.034	.034	.034
Screen to Cylinder, Front	.250	.250	.250	.250	.250
Front Plate, Top and Bottom	.015	.017	.017	.022	.022
Flats to Cylinder	.010	.010	.010	.012	.015
Doffer to Cylinder	.007	.007	.007	.010	.010
Doffer Comb to Doffer	.012	.012	.012	.012	.012
Licker-in Speed	250	375	275	350	275
Production per hour	7 lbs.	12 lbs.	10 lbs.	15 lbs.	12 lbs.



The French Comb

—how to adjust it

By FRANK A. LEWIS

Faulty piecing up, cloudy webs, irregularities in detaching, and quality of noils are discussed.

DIFFICULTIES which may occur during the operation of the French or rectilinear comb are numerous and troublesome to reveal and correct. More especially are they troublesome to the novice who, having perhaps been exposed to a generally short apprentice program and sometimes under the tutorage of an indifferent supervisor, finds that the intricacies of this particular combing mechanism are manifold.

For any one person to condense an impressionable list of combing faults and adjustments is impossible. However, it is felt that by classifying these irregularities into groups, a discussion outlining some practical hints of a remedial nature can be of value to those in need of this type of information.

For the sake of simplicity, a conventional language is used. The implications will be obvious to those engaged in the operation of the French comb.

The faults may be divided into four distinct classes, namely:

1. Faulty piecing up and associated defects.
2. Cloudy, neppy, and dirty web.
3. Detaching irregularities.
4. Noil quality.

Defects in Piecing Up. Faulty piecing up of the web is a very noticeable defect presenting a series of wavy effects with alternating thin and thick places. In exaggerated instances, the fiber fringes, not being superimposed on each other according to a normal pattern, exhibit "cuts" between succeeding fringes.

In considering the cause of this imperfection, it is desirable to systematically eliminate each possible source of the difficulty. If the "cut" appears close to the detaching rollers during the backward movement of the leather apron, the draft between the delivery calender rollers and the leather apron is excessive. The speed of the calender rollers can be reduced by adjusting the stud (A) towards the pivot point (B), as shown in Figure 1. Conversely, where the web shows a tendency to pile up on the apron causing the funnel to choke, the rollers are not drafting sufficiently. In this instance the stud (A) should be

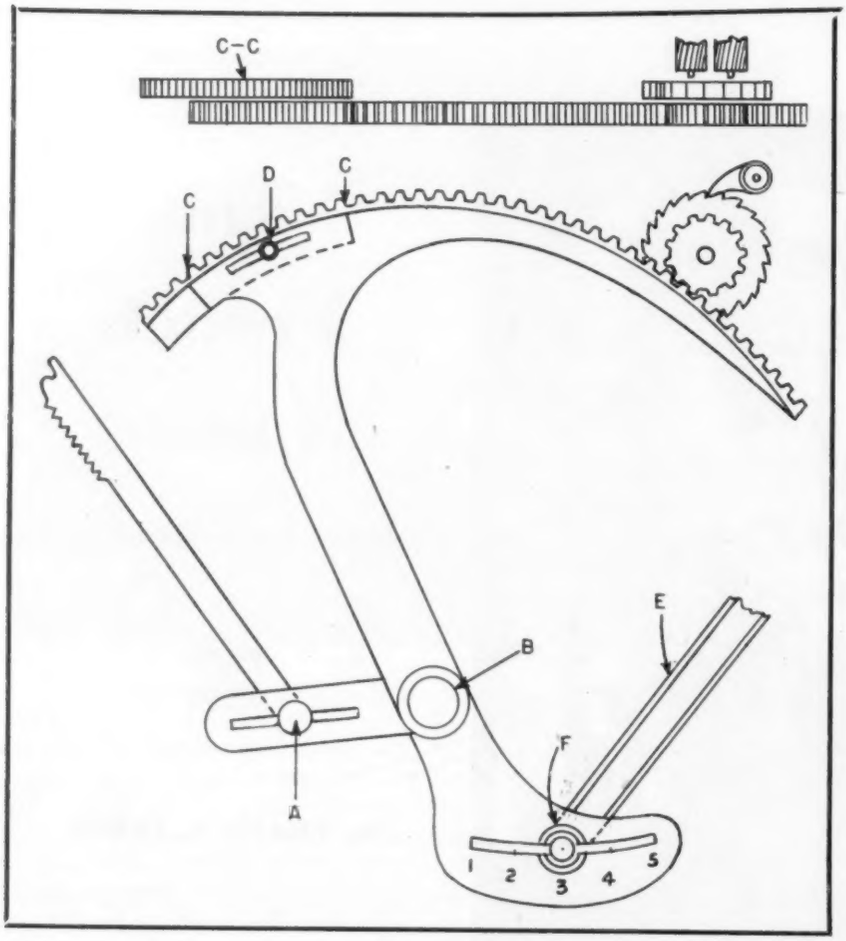


Figure 1.

moved away from the pivot point (B).

In the event this fault still persists, the next place to examine is the small toothed segment (C-C). This device controls the backward movement of the leather apron. By turning the machine one cycle by hand, visual examination will reveal whether or not the backward motion of the apron is insufficient to effect satisfactorily a predetermined overlapping of the fibers. Movement of the stud (D) controls the position of the segment (C-C) which, in turn, regulates and measures the distance traveled backward by the apron.

By increasing the recoil movement of the apron, an accompanying improvement in the piecing up of the fibers often results. However, this particular setting must be synchronized with the trunnion (E) whose position governs the forward and backward distance traversed by the apron. Usually, the position of stud (F) is established from practice where (1) position Nos. 1 and 2 are used for very long wools (approximately 10 to 12 inches in length); (2) position Nos. 3 and 4 are for fine medium length wools averaging about 4 inches, and (3) position No. 5 is for very short wools, 1½ to 2 inches in length. A minor change at this point produces a drastic change in appearance of the web on the apron.

When the fiber heads are being combed by the cylinder segments, the feed gills must be raised sufficiently, otherwise the gill needles engage the top of the wool slivers causing them to pile up across the entire width of the fringe. When this part of the fringe is fed to the apron, it is delivered in bunches extending across the combed web. The feed gill can be raised by a simple adjustment of the runner (G) shown in Fig. 2.

Although the selection of feed cams is arbitrarily established by the staple length and quality of the wool, it sometimes becomes necessary to investigate this point as a possible source of trouble. Usually, three cams are used: one for long material, one for long and short material, and one for short material.

For minor adjustments, an adjusting stud located on the cam can be employed advantageously. Under no circumstances should this cam be changed unless a very drastic change in the appearance of the web is desired.

Faulty Web. A cloudy, neppy, and dirty web is an obvious but usually difficult fault to trace. Naturally, whenever the wool slivers are excessively neppy, production is too much, and the slivers are of incorrect weight per yard—especially on the heavy side—quality production is hopelessly impaired. The character of the sliver being fed must be of acceptable quality and standard; otherwise, no amount of tinkering around, short of a miracle, will remedy the flaw.

If the slivers are of reasonably good quality, it may be that the unsatisfactory appearance of the web is caused by an improper burr knife setting. This setting is largely responsible for proper nep extraction from the wool fringe and must, therefore, be set correctly. Any deviation from the correct setting, no matter how slight, will cause an increase of neps in the web. The burr knife is the most frequent cause of cloudy, neppy, and dirty webs on French combs.

If the top of comb (H) in Fig. 2 does not penetrate deeply enough into the lap during the detaching motion, the tails of the fibers are incorrectly combed, thereby allowing neps and other extraneous matter to enter the web. It should be remembered that this is a very critical setting, and a change of 1 mm. in comb depth usually determines whether the fleece will be satisfactory or not. Machines equipped with a plunging blade, similar to (I) in Fig. 3, should be checked to determine that blade is moving downward sufficiently to clean the top comb properly. A radical, but sometimes effective solution, is to have a finer top comb with more needles per inch.

This change is not recommended unless all other means of locating the trouble have been exhausted.

Because of the position of the nipper mechanism, the forward ends of the fibers receive most of the combing action, and the degree of combing decreases progressively toward the back end of the fibers. There is a possibility that the half lap needles may not pass through the fibers at the bite of the nipper, especially if there is a wide setting between the nipper and cylinder needles. This setting should be tested, although the attention required is negligible, once this setting is properly made.

If a small brush (J) is attached to the jaw of the nipper, as shown in Fig. 3, it should be deep enough to touch the needle points of the cylinder (K) which should move the brush bristles slightly when they are in motion. Improper combing out of neps may result if the setting is too high, and conversely, an excessively deep setting increases the percentage of noils by allowing good fibers to be carried into the noil mechanism.

An infrequent, but nevertheless potential source of trouble of this kind is either a defective, worn out, or incorrectly set circular brush.

Detaching. Usually, defective detaching can be detected easily. In most instances defects occur in three places on the web, namely: in the middle, at the two ends, and over the full width of the apron. If the fibers do not come through evenly from the detaching rollers to the web, the flaws can be corrected by varying the pressure on the detaching rollers accordingly. Insufficient pressure causes the ends of the rollers to detach faultily; too much pressure causes faulty detaching in the middle.

If the imperfection extends over the full width of the apron, many factors may be responsible. Too small an opening of the nipper causes the stock to rest heavily on the lip of the lower nipper. As a result, the detaching rollers cannot grip the fringe properly. By a simple adjustment of the adjusting nuts, the nipper opening can be regulated.

Thick, sticky, or glossy aprons may cause faulty detaching. Care and close adherence to specifications can eliminate this part as a source of this type of trouble.

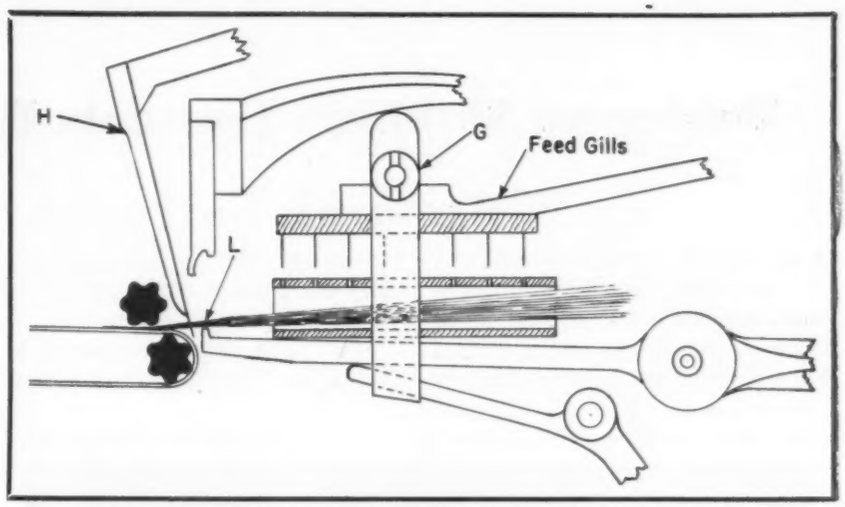
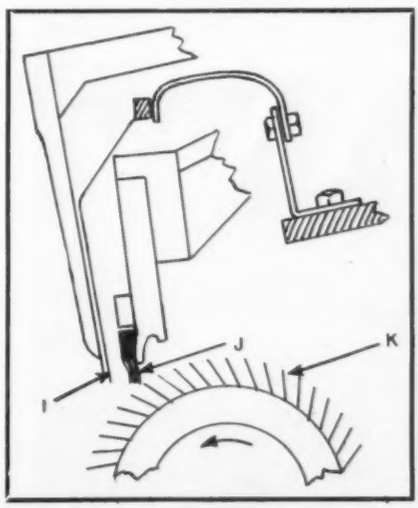


Figure 2.

Sometimes, heavy feeding may impose a burden on the detaching rollers in which case they will not detach satisfactorily. To remedy this situation, one of two things can be done, namely: change the feeding arrangement to feed less, or reduce the weight of the slivers being fed. Also, a deeply set top comb may overload the detaching rollers to such an extent that they will produce faulty work.

If the bottom nipper is slightly higher or lower than it should be, the result is an uneven web. The wool should be lined up perfectly from the feed gills, through the top comb, to the bite of the detaching rollers. See (L) in Fig. 2.

Figure 3.



A dirty nipper knife may cause the bit of the nipper knife to remain open, allowing the half lap to pluck out whole pieces of sliver, thereby causing the web to have holes in it. Uneven pressure, or insufficient pressure on the nipper knife also can cause irregularities in detaching.

Noil Quality. An examination of the noil as it accumulates in the noil box will reveal whether the noiling mechanism is functioning properly. If it appears lumpy with the noil web falling in pieces instead of a continuous sheet, the most frequent causes of this condition are either a dirty or worn circular brush, or too wide a setting of the doffer comb.

A good brush cleaning schedule obviates this kind of trouble with noil quality. Many times brushes become so hard from an accumulation of waste that it takes a strong steel brush (of the rake type) to bring it back to something resembling normal flexibility.

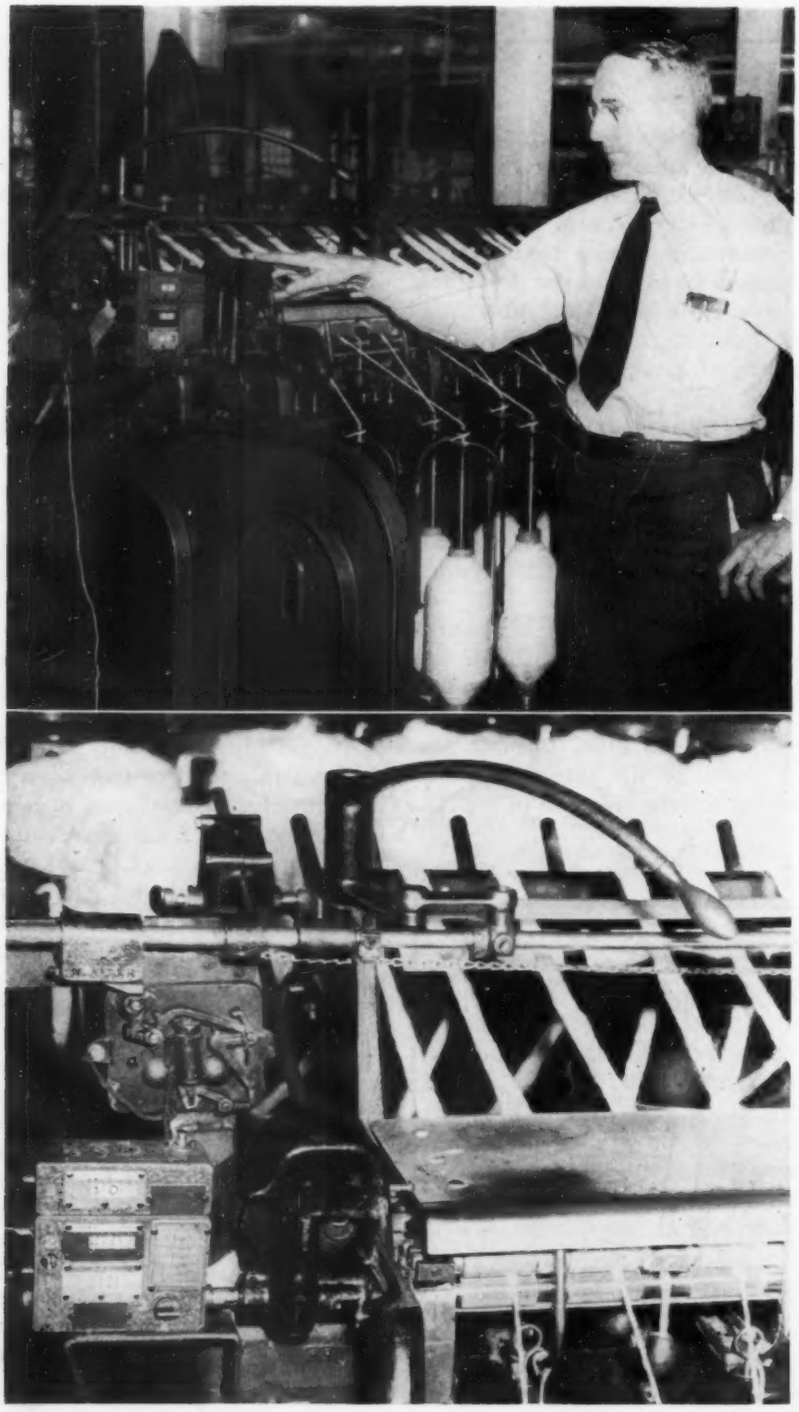
Short wool should be fed slowly to the cylinder which has a limited combing interval. A logical conclusion is that if two fibers of different lengths are fed at the same rate, the longer fiber will be acted upon more times by the half lap needles because they are revolving at a constant rate of speed. Short fibers, fed heavily, are not supported sufficiently; consequently, good spinnable fiber is combed down into the noiling mechanism.

Device on Slubbers Controls Roving Yardage

A SLUBBER yardage counter for controlling uniformity of bobbins has been installed in the Sycamore (Ala.) plant of Avondale Mills. The mechanism is devised to control and to insure automatically the amount of roving wound on the bobbins for each doff.

Since it is almost impossible to set roving frames so that each doff will be the same, and since doffs from different slubbers usually have varying amounts of roving on the bobbins, it is difficult for the speeder tender to creel systematically. This causes extra piecings, waste, and uneven yarn. If the slubber packages have the same amount of roving on them, creeling may be performed easily and in systematic order.

Courtesy, Avondale Sun.



John Rowell, foreman of the carding department at the Sycamore plant, devised the arrangement for the purpose of obtaining uniform bobbins in an effort to eliminate piecings and waste.

The Mechanism

A regular drawing frame yardage clock was attached to the front roll of the slubber. An electrical comber stop motion was then installed so that when the exact amount of yards desired was wound on each bobbin, the frame would automatically stop.

As a result of this arrangement, each slubber has the same amount of yardage per bobbin on each doff, and the bobbins can be creeled with a minimum amount of piecings.

Another important feature of the knockoff motion is the attachment that runs from the rail to the yardage counter. This attachment stops the machine while the carriage is moving upward, but does not stop the slubber while the traverse motion moves downward. This eliminates any trouble speeder operators might have in creeling bobbins that are finished when the last traverse is wound downward.

Upper photo, John Rowell of Avondale's Sylacauga, Ala., plant explains how he modified slubbers so that they will automatically knock off when a predetermined yardage of roving has been wound on the bobbins. Below, close-up view of yardage counter and stop motion.

Clark Modernizes Mill Village

at Recently Acquired Acworth Plant

Staff Prepared

THE CLARK Thread Company has recently completed transferring its entire manufacturing facilities to Georgia, and has purchased Acworth Mills at Acworth, Ga., for relocation of one of its spinning mills. The recently acquired mill was principally engaged in the manufacture of tobacco cloth. The move into the new quarters was started in the spring of 1947, and was finished recently.

Immediately upon taking over this plant, an extensive program of modernization of the mill village was started. The village was in poor condition and was very much in need of extensive repairs when the property was purchased.

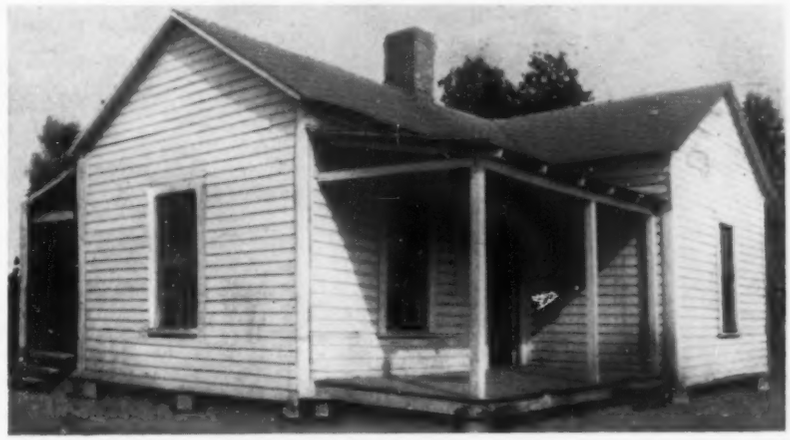
The remodeling program under way includes complete renovation of the houses both inside and out. The old drop cord wiring and lighting fixtures were removed. New installations include modern lighting, electric stoves, modern sanitary facilities, stall showers, and hot water heaters. White asbestos siding is used on the exterior for additional insulation and beauty. New flooring has been installed inside, and new paint has been applied to complete a thorough job of reconditioning the residences. The village is rapidly being converted into a modern and attractive group of homes.

Outdoor water supply facilities have been eliminated by installing modern plumbing and toilet facilities in the houses. Septic tanks are installed as part of the sanitary facilities of each house because the village is outside of the city limits and is not furnished with city water and sewage disposal facilities. The new water distribution system includes hydrants for fire protection.

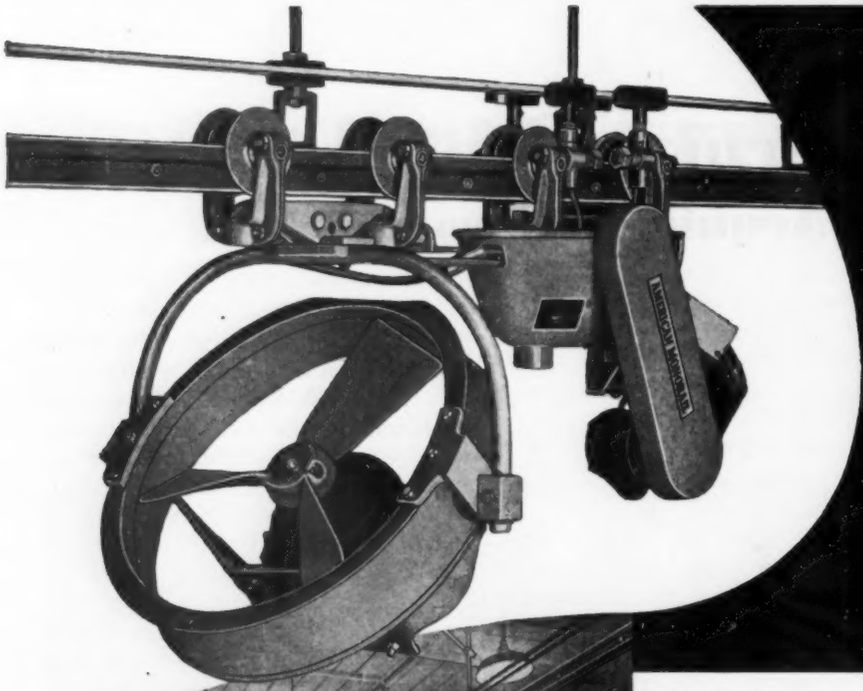
The yards have been graded, and lawns and shrubbery have been planted around the houses. Graveled walks are being laid from the houses to the streets. Future plans include the paving of these walks and the streets in the village.

The Eli Whitney School is maintained by the mill for education of employees' children. This attractive building is to be converted into a community house as soon as county school facilities are furnished. The modern community house is planned to accommodate all employees, and a large playground is being built for the children.

Prior to beginning work on the village, the mill buildings were repaired and painted, and fluorescent lighting was installed throughout. It is reported that the mill is now equipped to spin some of the finest counts of yarn manu-



The house shown in the upper photo is typical of the condition of the houses in the mill village when Clark Thread Co., purchased the property. Lower photo shows the same house after renovation. Note grading and neat appearance of grounds.



Keep Ceilings Clean with AUTOMATIC CEILING CLEANERS

No Labor Cost
No Production Loss
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No Fire Hazard

At a recent meeting of textile executives, twenty-four mills reported most common practice of blowing down ceilings once every twenty-four hours with frames running, or once a week when idle. This means lost production when the machines are shut down under the cleaners or extra time for cleaning labor.

ONE MILL REPORTED EXCELLENT RESULTS WITH AUTOMATIC CLEANERS!

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Write for copy of Bulletin CB-3 describing all the latest developments in Automatic Cleaners for Textile Mills.

THE AMERICAN MONORAIL COMPANY

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factured in the state of Georgia. The entire output consists of 110s yarn twisted into six-cord thread for domestic sewing.

The company has built a cyclone fence around the mill property. Ample parking space has been provided adjacent to the mill for the convenience of employees. The grounds have been drained, and lawns have been planted to further augment the program of beautification and modernization that has been so successfully undertaken at this latest addition to the company's facilities.

The modernization program at the Acworth plant included landscaping the grounds surrounding all buildings. Note in the photo above the neat appearance of the lawn just outside the mill.

Left, school maintained by the mill for education of employees' children. Plans call for conversion of this building into a community house when county school facilities are more conveniently located.

Cotton's Industrial Markets Show 25% Increase

Cotton consumption in 24 major industrial markets registered a 25 per cent increase during the eight year period, 1939-46, the National Cotton Council announced recently.

The increase in cotton was revealed in a detailed study of cotton consumption trends in the third supplement of "Cotton Counts Its Customers," a continuing survey of cotton markets by the Council's market research department.

The greatest single increase was in automobile tires where cotton usage jumped from 610,000 bales in 1939 to 764,340 bales in 1946, an all-time record. For all automobile uses, including tires, cotton consumption climbed from 696,330 bales in 1939 to 856,870 bales in 1946.

Other notable gains were registered in cordage and twine where the consumption figure for 1946 was 300,790 compared with 239,250 bales in 1939. Shoes which stood fifth among cotton's industrial markets in 1939, using 157,740 bales, became fourth industrial consumer of cotton in 1946 with 203,290 bales.

Insulation, including both electrical and thermal insulating materials, in 1946 was claiming 180,910 bales of cotton as compared with 82,110 bales in 1939. Fishing supplies used only 18,830 bales of cotton in 1939, but in 1946 constituted a market for 56,510 bales. Mattress felts consumed 25,000 bales in 1939 against 83,160 in 1946.

The only large industrial market in which sizeable losses were registered was bags. In 1939, the bag industry was utilizing 502,090 bales of cotton. This figure had declined to 467,630 bales in 1946. To meet the challenges to the bag market which have been aggravated in recent months by losses in the flour bag field, the raw cotton industry, textile bag manufacturers, textile merchants, and textile mills soon will initiate a broad new sales program involving expenditures up to $400,000 annually.

The Council study pointed out that industrial uses rank high in importance to the cotton industry.

ACMA to Meet in Palm Beach

The 1949 annual meeting of the American Cotton Manufacturers Association will be held at the Palm Beach Biltmore Hotel, Palm Beach, Florida, March 31-April 2. This hotel will accommodate practically all the members and their guests.

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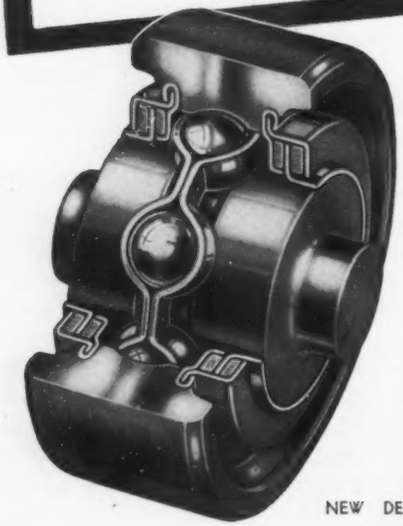
Hundreds of thousands of these rolls have been in continuous service for periods of 10 to 18 years.

No Roll sold in competition can compare with this record.



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Ramie Today

By HAROLD T. COSS* and JAMES L. TAYLOR**

Introduction

RAMIE FIBER has long been a subject for enthusiastic predictions, few if any of which have been realized. As a consequence, there has been much elaboration in the literature about the great advantages that ramie fiber possesses over most of the other fibers in regard to tensile strength, luster, resistance to rot and mildew, high absorbency, rapidity of drying, and great increase in tensile strength when wet. On the other hand, much has been written on such disadvantageous properties as stiffness and lack of toughness, which combination always means brittleness. Usually, the advantages have been widely quoted in order to stimulate current interest in ramie, both from an agricultural and industrial standpoint. However, in almost every instance the quoted data can be traced back to the same original textbooks written many years ago.

Very little information has been published on the merits or demerits of ramie when made into textile products on modern systems of textile processing such as those used in this country today. It was with this lack of up-to-date knowledge in mind that this discussion was undertaken of recent investigations of ramie.

A study of ramie and its processing methods was conducted at the State Engineering Experiment Station of the Georgia Institute of Technology, under the sponsorship of the Johns-Manville Corporation, and at the Johns-Manville Research Center.

The primary intent of this investigation was the examination of fiber properties in order to determine whether economical and practical methods could be developed to process ramie fibers into textile products, and to indicate to what extent the fiber properties affect the ultimate quality of these products when made on the modern systems of textile manufacturing commonly used in America. Once the highly publicized properties of the ramie fiber had been definitely proved to be actually factual and advantageous in the finished article, it was presumed that the program would then evolve to the point of realistically determining the place that this fiber should take in the established family of American textile fibers.

It was recognized that before a market could be established, products made from ramie would have to exhibit definite advantages or unique attractiveness over present textiles from a consumer standpoint. The period is rapidly coming to a close in which any type of yarn or fabric is purchased by the market, regardless of value. The situation which should pertain from now on in the textile market should be more advantageous in obtaining a true appraisal of the value of ramie products.

RAMIE in the form of dried and baled decorticated ribbons from a variety of sources was obtained and examined during this investigation. The specific geographical areas from which bales were obtained were the Philippines, Sumatra, Brazil, West Africa, Haiti, Cuba, and Florida. The sources did not include any postwar Chinese production because until very recently it has not been available in this country, although China is reported to be by far the largest producer of ramie.

Excellent quality decorticated ramie was obtained for the investigation from the Dauphin sisal plantation in Haiti, where it was produced from 1941 to 1945; ramie culture has since been abandoned there, however, because the climate necessitated extensive irrigation and the crop proved to be uneconomic.

Ramie bales from Sumatra have also been of good quality, but it should be noted that what we have been able to examine has been a residue of the Japanese occupation and not from current production.

The Brazilian, Cuban, West African, and Philippine ramie which was examined was of variable gum and shive content and was not comparable in quality with that from the two preceding sources.

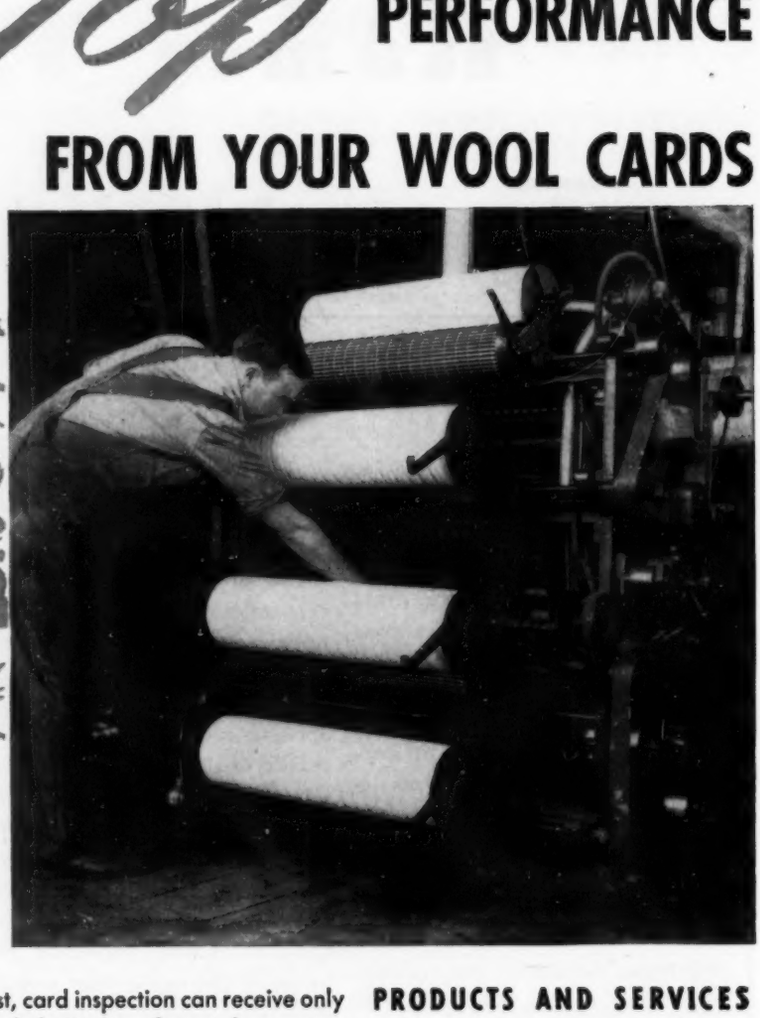
The Florida ramie which was investigated was of variable quality, with only a small amount being of the "wash" decorticated type. No domestic ramie was investigated aside from that from Florida sources.

Total world production of de-

*Supervisor, Thermal Insulations and Textile Research, Johns-Manville Research Center.

**Faculty Research Associate, State Engineering Experiment Station; Professor of Textile Engineering, Georgia Institute of Technology.

HOW TO GET "Top" PERFORMANCE FROM YOUR WOOL CARDS



On the athletic field or in the mill, the difference between mediocre and top performance in human beings is a matter of leadership.

Good leadership (proper attention) can also bring out hidden reserves in your wool cards. This was demonstrated during the war, when, having exhausted all other means of increasing production, many woolen mills asked us to inspect their cards.

By using a more suitable card clothing, changing settings and other seemingly minor adjustments, we were able, in some cases, to increase production as much as 30% and also to greatly improve quality.

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corticated ramie has been estimated by the writers (on the basis of private correspondence with vendors and U. S. Dept. of Commerce Foreign Commerce reports) to be not in excess of 110,000 bales (55,000,000 lbs.) annually at the present time, a figure which should be compared with the estimated annual world cotton crop of 26,800,000 bales. Of this 55,000,000 lbs. of ramie, probably not more than 10,000,000 lbs. is of satisfactory quality as regards length and cleanliness of the fiber.

Except for the Haitian, Sumatran, and a minor amount of Floridian ramie fibers, which were well decorticated with a "wash" operation to remove excess gums and shive in the decortication, the rest of the ramie bales which were purchased were evidently composed of fiber which had been decorticated on the simple "Raspador" type machines or their equivalent. It might be explained that a "wash" decortication implies the use of a heavy water spray at the end of the stripping operation, which spray washes away excess gum and shive which would otherwise adhere to the fiber, even though loosened. The washed fiber was cleaner and had a lower gum content than the unwashed fiber.

Table II (page 111) illustrates the variation in quality of fibers processed from the various sources. The variation in gum content is to be noted particularly. While it is impractical to state the difference in shive content numerically, it varied even more than the gum content.

The quality and value of the dried ribbon as it is purchased in the bale is dependent on gum and shive content, moisture content, length, freedom from mildew, and the physical condition in the bale.

Some fiber from the Orient was received in too tightly pressed small bales in which the density ran as high as 40-50 pounds per cubic foot. Although it is desirable to conserve shipping space, this tight a bale is difficult to break up, and fiber may be damaged in a manner similar to the damage encountered in a double compressed bale of cotton. Bale sizes from the various countries are not standardized, but the 2½ x 2½ x 5 ft. bales from Haiti, weighing 500 pounds are a good example of satisfactory packages; they possessed a density of 16 pounds per cubic foot.

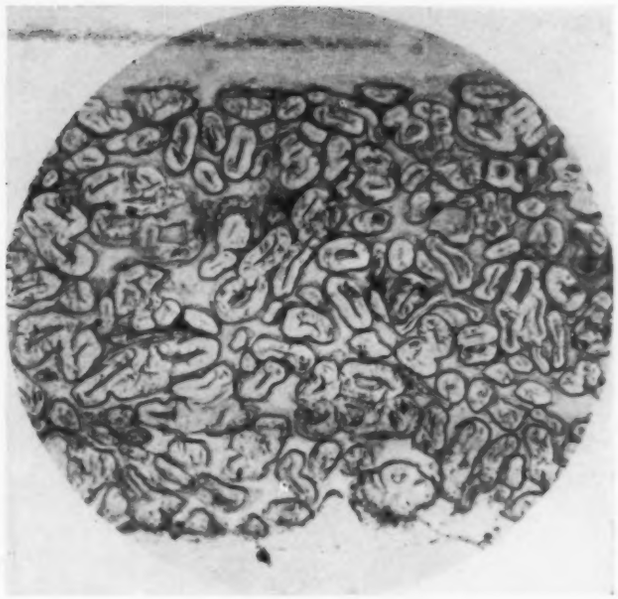
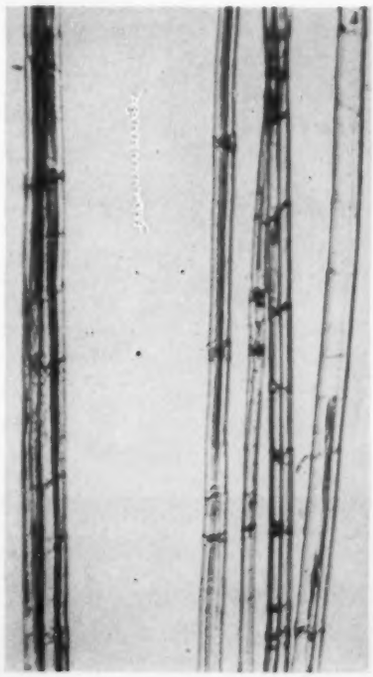


Fig. 1. Cross section (180X) of degummed ramie fiber, Haitian.

The quality of the ribbon depends equally on the strength of the fiber and the fineness of fiber diameter. These properties are controlled partly by the maturity of the plant at cutting time, partly by the treatment (i.e., whether the fibers are damaged in decorticating or drying), and partly by the soil and climatic conditions of growth. Obviously, other factors being equal, the cleanest ribbon with the least shive and the lowest gum content is worth the most, since the highest yield of usable fiber is obtainable therefrom. Definite purchase specifications have not been established, and the grading systems of the Orient are decidedly inadequate for purchasing fiber, all of which tends to make long-range commitments somewhat precarious.

Fig. 2. Longitudinal view (172X) of degummed ramie fiber, Haitian.



Degumming. Ramie fibers used in these investigations were obtained from the bast of the stingless nettle or *Boehmeria nivea*. These fibers vary in length and occur in bundles, cemented together by gums, waxes, and other inter-cellular materials. The bundles must be separated into individual fibers before processing on conventional textile machinery, and the process for the removal of the cementing materials is called degumming.

An analysis of the bundles of decorticated Haitian fiber reveals the following average percentage of constituents (dry basis):

	Per Cent
Ash	2.05
Aqueous Extract	6.90
Fats and Waxes	0.22
Cellulose	83.32
Pectins and other intercellular material	7.51
	100.00

It has been reported that degum-

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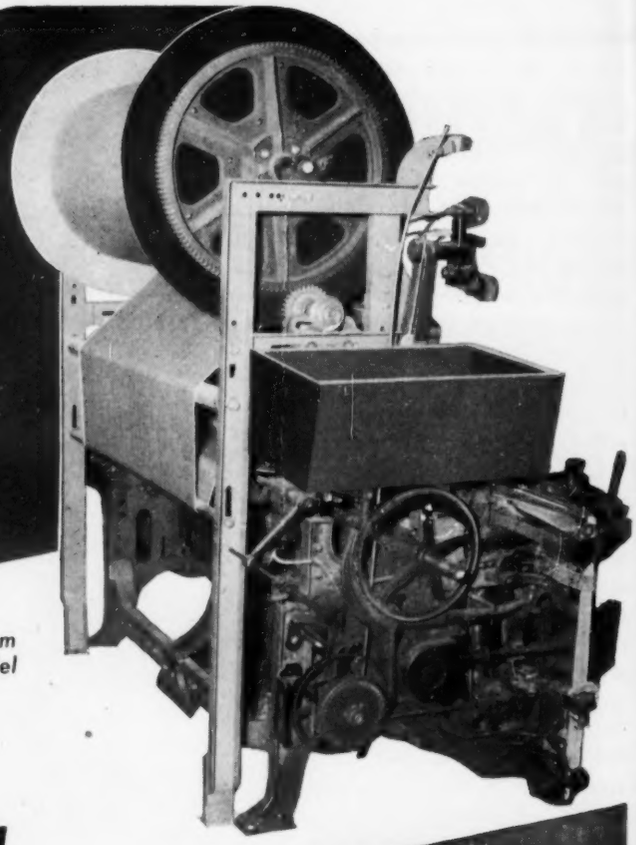

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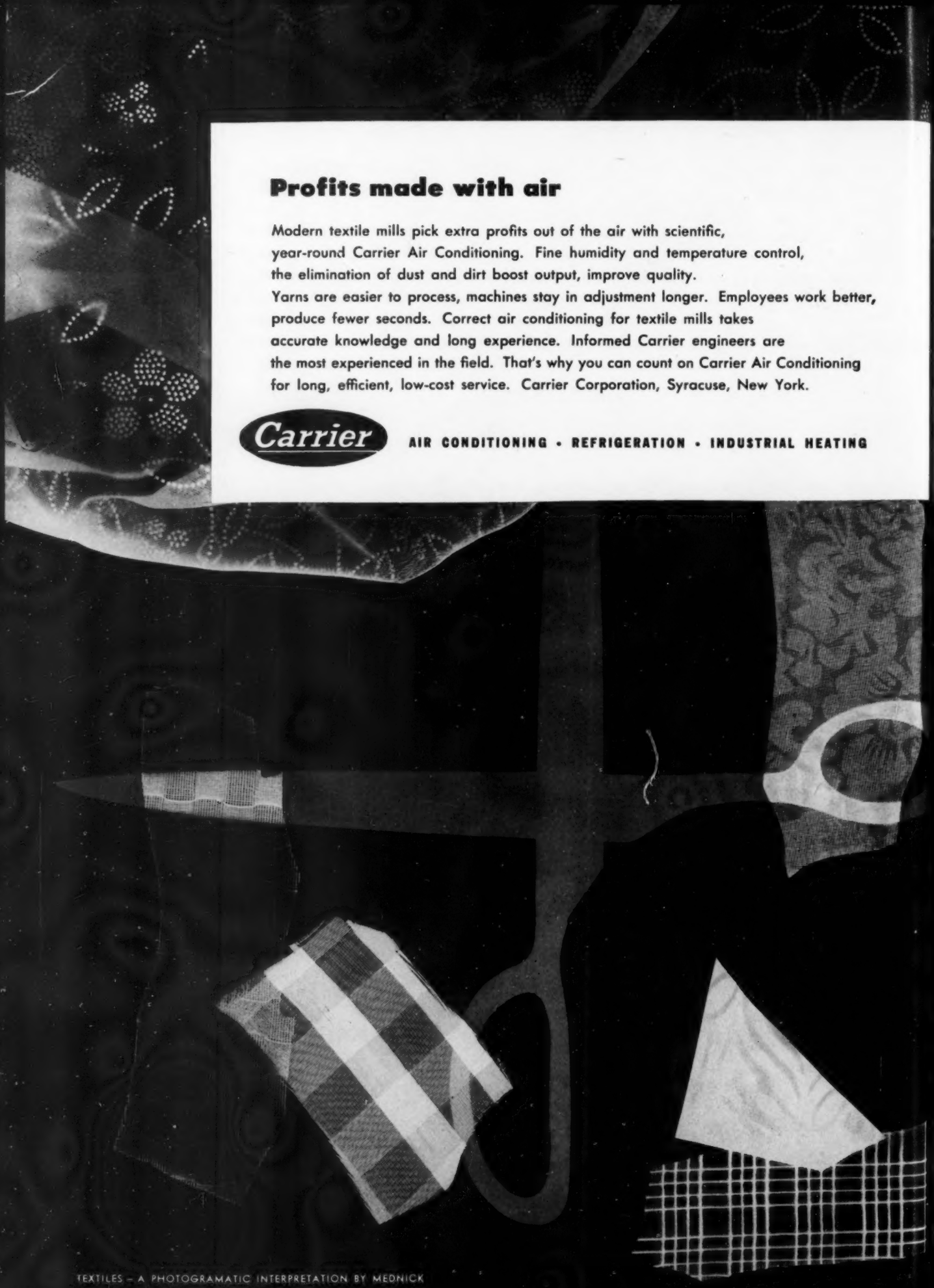

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TEXTILES – A PHOTOGRAMATIC INTERPRETATION BY MEDNICK

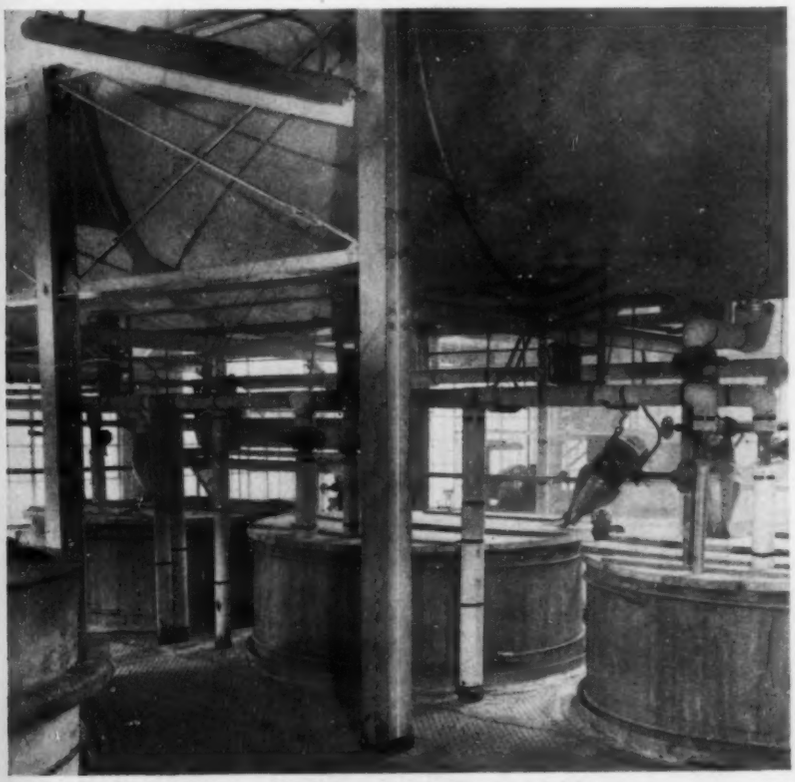
ming can be performed by either of two methods, (1) chemical, and (2)bacteriological. Most of the degumming procedures used in these investigations were chemical and gave a yield of approximately 80 per cent degummed fibers (dry basis), indicating that the degummed fiber was practically pure cellulose. These data were substantiated by making alpha-cellulose determinations on the degummed fiber; in most cases, the alpha-cellulose content was from 98 to 99 per cent. A few attempts were made to degum decorticated ramie bacteriologically, but in every instance a weak, harsh fiber resulted.

Degumming has been referred to in the literature as a very delicate and laborious process, one of the chief obstacles to commercial utilization of ramie fiber. Hundreds of degumming procedures have been reported in the literature. Some of the most promising of these and many other original procedures were tried in the laboratory, and the results indicated that properly decorticated ramie fiber may be degummed by any one of several different formulas with almost identical final results. Very good results have been obtained by use of various wetting agents, soaps, alkalis, and acids followed by the applications of suitable finishing agents. It was found, however, that although from a standpoint of the reagents used, degumming is a relatively simple chemical process; the techniques of applying them were found to be most important.

Although development of formulas in the laboratory can be satisfactorily attained with quite simple apparatus, application of chemical formulations to pilot plant scale production entailed considerable elaboration and refinement of process. Because of the rather wide variations in incoming raw stock, considerable skill and judgment had to be developed to vary both reagents and procedures so as to attain desired uniformity of final product in sufficient quantity for mill use. Thus, poorer quality fibers required special techniques in order to adequately degum without overtreatment, and resulted in lower yields.

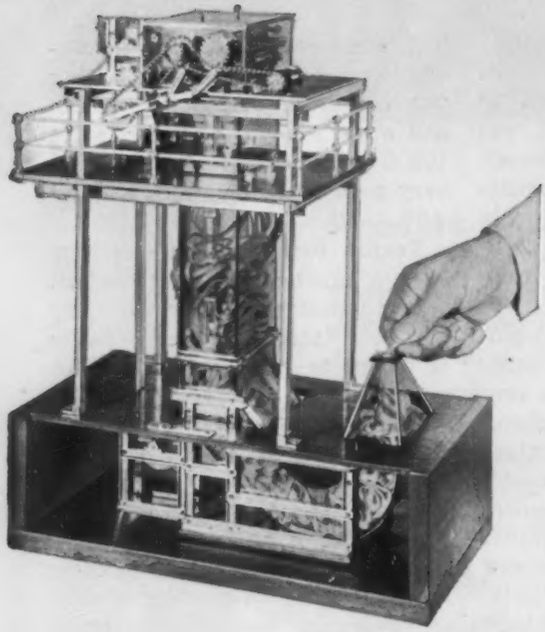
The effect of high pressure versus atmospheric during the degumming treatments was studied. In many instances, it was found that a temperature of 165°C and pressure of 90 to 100 pounds per square inch were very beneficial, in others, where the quality of the fiber was higher, atmospheric pressure and a degumming temperature of 100°C were sufficient to give a very good product.

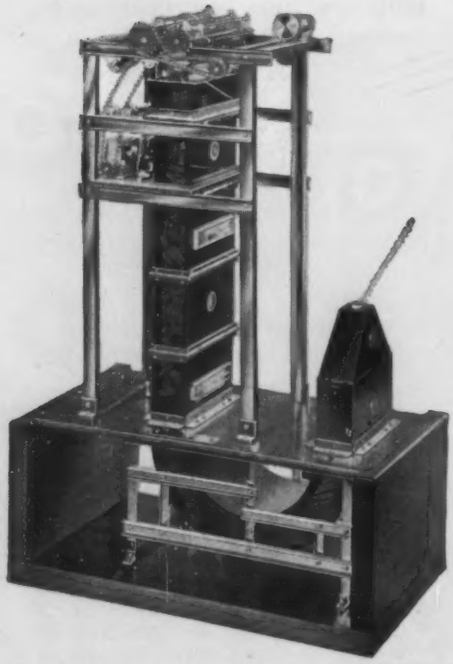
Textile Processing. It has long been a practice in the American textile industry, whenever a study of newly introduced staple fibers is made, to investigate first the possibilities of the cotton system of spinning yarns rather than the wool or worsted system. In addition to being more in use, the cotton system enables a lower cost of production to be maintained because of fewer steps in processing and usually higher machine speeds. Other factors favoring the cotton system are the flexibility and versatility of this equipment which make it possible to process on it fibers other than cotton, or blends of different fibers, with a minimum number of modifications. The successful spinning of staple rayon and cut wool on adaptations of the cotton system illustrates the potentialities of this system. Naturally, however, there are certain requirements of strength, length, softness, and diameter of fiber that must be met before the cotton sys-

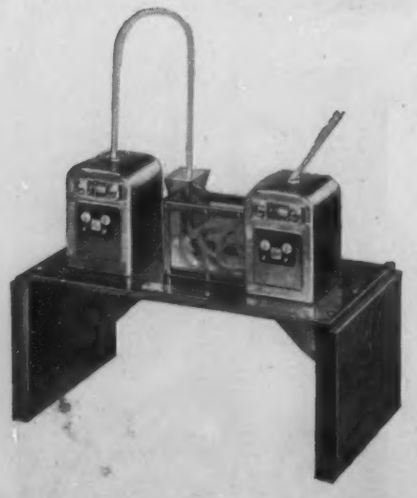


Left, view in a semi-commercial plant showing chemical kiers and mixing tanks for degumming ramie fibers. The kier at the extreme left holds about 1 ton of ramie.

Below, operative is straightening ramie that has been degummed, preparatory to placing it in a washer.







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tem can be employed with success.

In the course of this particular investigation of ramie, primary efforts were concentrated on the utilization of the cotton system, or modifications, for spinning ramie fiber, since the degummed fiber possesses most of the characteristics required for use in this system. Other investigations were made on the worsted and linen systems, however, on a somewhat smaller scale.

Whenever staple fibers are used, regardless of the system selected for the spinning of the yarn, the problem of properly opening the stock after degumming treatments lies in the path of successful processing. Although some cleaning of the stock is necessary at this point and is readily accomplished, the major requirement is the separation of the fibers and the presentation of a loose, fluffy mass with a minimum amount of fiber damage. Extreme care has to be taken in the selection of opening equipment, the sequence of use, and in the technique of operation. Admittedly, the problem of the properly controlled opening of degummed ramie at economical rates is extremely difficult and has not been completely solved in this investigation.

Needless to say, one familiar with textile processing of fibers would not expect ramie to be spun on the cotton system without some modifications and special adjustments any more than he would expect this to be true for cut wool or the stapled synthetic fibers. The fact must be faced that, because of peculiar inherent properties, such as its straight cellular structure for example, the behavior of ramie during processing through textile machinery is unlike that of other fibers. Furthermore, until adequate controls are established in the grading and classification of the raw fiber and in the subsequent preparation of the fiber for textile use, specific methods of yarn preparation can not be adopted which would be strictly valid for all ramie fibers.

Most of the ramie yarns and fabrics on which tests were made and herein reported were produced on the cotton system. Laboratory spinning experiments were supplemented by actual cotton mill processing on a small scale. The weaving of the yarns spun during these experiments was done on conventional equipment. The design and construction of most of the fabrics were limited to types commonly found on the market in linen and cotton, in order to obtain comparable materials for comparing ramie with linen and cotton.

Fig. 3. Display of products made from ramie.

Finishing Treatments. As a general rule, it can be stated that finishing treatments applied to ramie yarns and fabrics, such as desizing, scouring, bleaching and dyeing, are very similar to those for cotton and linen. Desizing to remove the starch compound applied in slashing is naturally the same as for cotton, and any suitable enzyme can be used. The scouring treatments can be conducted with fairly good results under atmospheric pressure; however, kier boiling at 15 pounds pressure is more effective in digesting the woody material sometimes found entwined in the yarns.

Dyes and dyeing methods used for cotton and linens were found to be suitable for ramie. However, it was noted that some direct and vat dyes had difficulty in penetrating the yarn and that the time of dyeing had to be increased to obtain the desired shade. Package dyeing of yarns proved to be very successful and can be used on a commercial basis if the packages are wound with the proper tension and lay.

Mercerization of yarns and fabrics increases the affinity of the fiber for the dyestuff and improves the natural luster of the fiber, but at the same time it imparts a feeling of harshness.

Products Made. Although emphasis was placed on fabricating materials for use in the testing and analyses program, some efforts were directed toward producing fabrics with a view of evaluating the properties of the finished article or garment from a consumer's standpoint. These fabrics were given various commercial finishing treatments, depending upon the end use, and were then made into kitchen towels, summer wearing apparel, table fabrics, drapery, and upholstery material.

The field of industrial products has been explored to some extent. Important among these products are packing, a heavy canvas for Navy interest, braided wire covering, narrow tapes, and marine cordage.

Although work in the field of knitting has been limited, the results so far indicate that ramie yarn spun from staple fiber does

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not possess the necessary properties desired of a yarn for circular knitting. The main shortcoming appears to be the lack of elasticity. Products made on circular knitting machines appeared inferior to cotton in the property of shape retention.

Properties. Strict appraisal of the properties of ramie fiber, yarn, and fabric is extremely difficult because of differences created by methods of preparation and fabricating, and a true evaluation of fabrics made of ramie in comparison with those made of cotton or line flax is complicated by the fact that precisely duplicate construction of yarn and fabric is necessarily illogical and incongruous because of the differences in the respective fibers. When one considers the data on properties herein presented, it should be emphasized that these data pertain only to the specific samples tested and are not necessarily valid for samples with different construction.

It must be remembered that yarns of staple ramie only are considered here. These yarns were all made on adaptations of the cotton system with fibers stapled to the cotton range. It seems obvious that strength characteristics of yarns made with longer fiber on a linen or worsted system should be considerably higher. Since ramie is known to be a crisp, linen-like material, it is recognized that ramie-linen comparisons would be more pertinent. While the data presented are admittedly incomplete, it is believed worthwhile to publish some actual values obtained in order that the physical characteristics of ramie yarns and fabrics made on the cotton system may at least be seen in the proper perspective.

The physical characteristics of ramie have often been confused in the literature simply because the data presented did not include the methods of manufacturing or the construction of the yarns or fabrics mentioned. In other words, it has been shown in these studies that in a lightweight woven ramie fabric of a plain weave design, one is readily reminded of linen in certain properties of crispness, appearance, and luster. On the other hand, a heavier fabric of a twill weave construction which has been given a soft finishing treatment closely resembles a worsted fabric in appearance and hand.

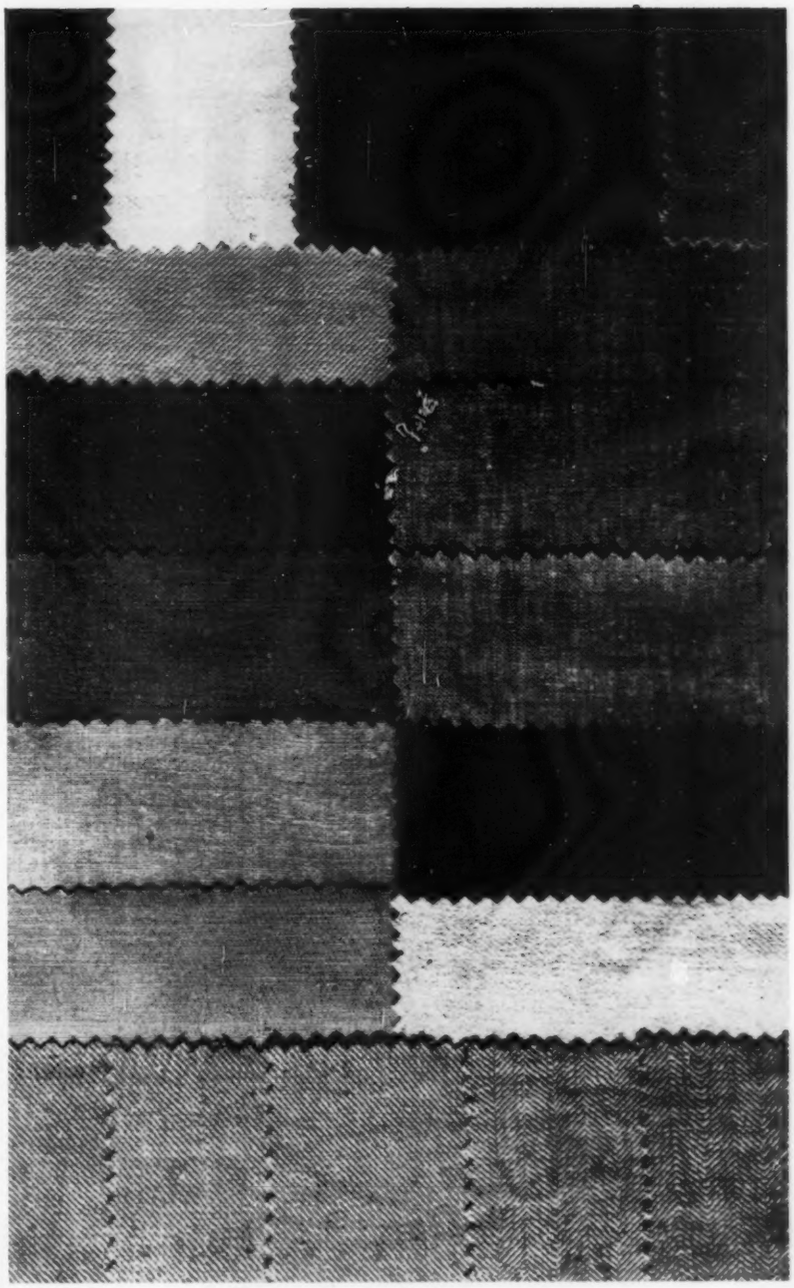

Fig. 4. Swatches of dyed ramie fabrics.

Tensile Strength of Fibers. The majority of tensile strength tests were conducted at 50% RH at 75°F rather than 65% RH, as is standard in the textile industry. In order to determine the effect of humidity on tensile strength of the fiber, several tensile strength determinations were made at various humidities. The humidity effect on tensile strengths is given in Table I. As is seen from these figures, fibers at 65% RH were 14.8% stronger than the same fibers at 50%RH.

Table II shows some relative tensile strengths of degummed and undegummed fiber of sample bales from different locations. Gum content, or weight loss on degumming, and the ash content before degumming are also shown. As standard deviations* on the reported tensile

*Standard deviation is the square root of the average of the squares of the individual deviations.

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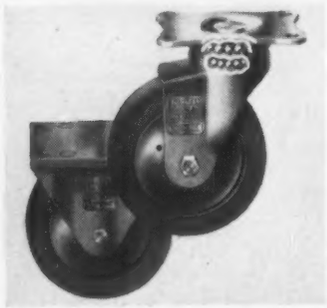

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strengths of the Scott and Pressley results were on the order of 20,000 inches, it may be said only that the Haitian and Brazilian fibers appear to be slightly stronger, and Cuban and Sumatran fibers slightly weaker than the others. Low strength of the Sumatran fiber may be attributed to aging, since this fiber was obtained from a Japanese produced shipment which showed definite signs of long warehousing.

The Scott test data reported in Table II were determined on a Scott tensile machine using 20-40 mg. bundles. The Pressley data recorded in the same table were determined on a Pressley Bundle Tester using combed bundles of 1-2 mg. weight. The Pressley test is much quicker than the Scott test, because of simpler sample preparation, but the small bundle size gives a wider average variation than the larger bundle size used in the Scott test. Slippage is probably greater in the Scott machine, however.

The "Chandler" result, widely used in testing laboratories, was computed from the Pressley index (breaking load/bundle weight) using cotton constants, or 10,800 x P. I. No actual Chandler tests, which involve measurement of the circumference of each bundle, have as yet been made during this investigation and therefore, the error due to the different cross sectional area in ramie from cotton is not compensated for in these figures.

TABLE I

EFFECT OF HUMIDITY ON STRENGTH OF HAITIAN RAMIE FIBER

Number of Samples	Conditioning Atmosphere % RH	TS × 10^3 (Scott)	% Over O RH
25	0**	101 ± 3.0	0
25	30	137 ± 2.2	37
25	50	149 ± 3.0	49*
25	65	171 ± 3.6	71
25	100	236 ± 4.1	136

*50% RH is standard conditioning and testing humidity for results reported.
**Dried at 80° C.

The data in Table III indicate that whereas ramie is 92% stronger in degummed fiber tensile strength than raw cotton, the ramie single yarn is only 17% stronger than cotton yarn of the same count. The strength advantage is notably increased in the 6 ply, however, where the ramie is 40% stronger than the cotton yarn.

Brittleness. Many comments have been made in the literature about the brittleness of ramie, and its deficiency in knotting strength. Strength tests were therefore conducted on ramie and cotton yarns of similar construction to determine the straight strength, the strength when two strands were interlooped, and the strength when two ends were knotted together with a square knot. These tests were performed on a Scott inclined plane yarn tester (I-P-2), for tests below 1900 grams and a Scott X-3 tester for tests over 1900 grams. The results are presented in Table IV. Tests were made on yarns conditioned at 75°F and 50% RH, and also after having been saturated by 72 hours total immersion.

TABLE II

TENSILE STRENGTH OF DEGUMMED AND UNDEGUMMED RAMIE FIBER FROM VARIOUS SOURCES
(Fiber Conditioned at 50% RH and 75°F)

	Scott TS Inches		Pressley Index		Pressley TS Inches		"Chandler" PSI			
	Undegummed	Degummed	Undegummed	Degummed	Undegummed	Degummed	Undegummed	Degummed	% "Gum"	% Ash
Florida A	135,000	——	9.1	10.4	192,000	218,000	98,000	112,000	25	1.3
Florida B	148,000	148,000	9.3	10.9	196,000	230,000	100,000	118,000	22	1.3
Florida C	——	——	8.7	11.0	170,000	233,000	94,000	119,000	30	2.8
Brazil A	139,000	199,000	11.9	11.7	251,000	246,000	129,000	126,000	32	2.0
Brazil B	137,000	157,000	9.1	11.4	193,000	241,000	98,000	123,000	40	3.6
Sumatra	——	——	9.0	9.3	190,000	197,000	98,000	101,000	20	1.2
Philippines	——	——	9.4	10.9	199,000	229,000	101,000	118,000	30	2.9
China A	128,000	160,000	7.8	10.2	165,000	215,000	84,000	110,000	28	3.6
China B	125,000	160,000	10.1	10.4	213,000	220,000	109,000	112,000	30	3.6
China C	——	——	8.6	10.9	181,000	231,000	93,000	118,000	28	2.9
Haiti	135,000	167,000	10.2	11.9	214,000	250,000	110,000	129,000	18	1.2
Cuba	63,000	107,000	8.6	8.6	181,000	182,000	93,000	93,000	28	3.2
West Africa	11,000	145,000	7.3	10.5	153,000	222,000	79,000	113,000	35	6.1

NOTE: Standard deviation in Tensile Strength is approximately 20,000 inches.

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The ramie yarn was 18% stronger than the cotton yarn in normal breaking strength and 56% stronger in saturated breaking strength. This comparison is based on the strength results expressed as grams per grex in order to eliminate the slight differences in fineness of the two yarns. In looping strength, the ramie yarn retained its strength advantage over the cotton, although not in so marked a degree in the saturated break.

Interpretation of the looping results is somewhat complicated by the fact that there is actually a two yarn system across the span in the break test. The breaks occurred at the loop, the point of greatest strain in both the ramie and the cotton yarns. In knotting tests, the ramie yarns still had a decided strength advantage over the cotton, but the relative loss in strength from the straight tenacity was less in the conditioned yarn (4% loss for the ramie yarns, 16% for the cotton) and greater in the saturated yarns (23% for the ramie yarn, 2% for the cotton). The breaks occurred both at and away from the knot, depending apparently on uniformity of yarn.

TABLE III

COMPARISON OF COTTON AND RAMIE TENSILE STRENGTH

Fiber	Tensile Strength of Fiber—Lbs/Sq In ("Chandler")	Tensile Strength of Single Yarn 6s/1 (Lbs.)	Tensile Strength of Plied Yarn 6s/6 (Lbs.)
Cotton	65,000	2.70	19.50
Ramie (Stapled)	125,000	3.15	27.45

Note: Fibers and yarns were conditioned at 70° F and 65% RH.
The ramie fiber was stapled to 2" length.
The cotton fiber was 1" staple.

Mercerization. In yarns, small variations in count make it difficult to compare tensile strengths where strengths are fairly close together. In considering the effect of mercerization on strengths of yarns, some preliminary tests were made. The product of the actual count times the breaking load in pounds per skein was used to give the break constant. The yarns were conditioned at 65% RH and 70°F before each test. The mercerizing solution was 25% sodium hydroxide at 70°F, and the times employed were 5, 10, and 15 minutes. The yarn was not allowed to shrink during mercerizing. Five minutes was sufficient at this concentration and temperature for a marked increase in strength and luster. The results are listed in Table V.

Fabric Testing. In an effort to compare fabrics made of cotton, ramie, line flax, and cotton-ramie blends, samples having the construction shown in Table VI were used. All fabrics were of a plain weave type.

As can be seen in Table VI, samples 1 and 2 are comparable, samples 3 and 4 are comparable, and sample 5 is comparable to sample 6.

Tables VII, VIII, and IX show a comparison of tensile strength,

TABLE IV

KNOTTING AND LOOPING STRENGTHS

Construction of the Yarns:

	Twist/In	Cotton Count	Grex**
Ramie (2" staple)	11.2	5.06	1167
Cotton (1" staple)	9.8	5.77	1023

Results:

Yarns Conditioned at 75° F, 50% RH

	Straight		Looped		Knotted		
	Breaking Load (gms)	Tenacity (gm/grex)	Breaking Load (gms)	Ratio (gm/grex)	Breaking Load (gms)	Ratio (gm/grex)	% Straight Elongation
Ramie	1522	1.304	2805*	1.197	960	0.938	7.3
Cotton	1140	1.114	1225	2.404	1461	1.252	3.9

Yarns Saturated

	Straight		Looped		Knotted		
	Breaking Load (gms)	Tenacity (gm/grex)	Breaking Load (gms)	Ratio (gm/grex)	Breaking Load (gms)	Ratio (gm/grex)	% Straight Elongation
Ramie	2655*	2.275	3375*	2.892	2055*	1.761	9.2
Cotton	1495	1.461	1580	1.544	1470	1.436	8.9

*Tested on Scott X-3 Tester, 0-10 lb. range.
(All others on Scott I-P-2 Tester.)
**Grex—The number of grams per 10,000 meters of yarn.

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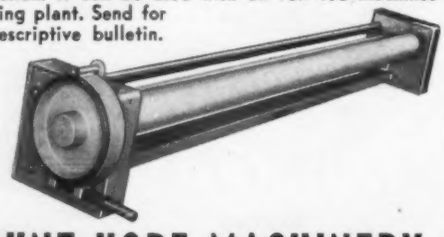

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TABLE V

MERCERIZATION EFFECT ON RAMIE YARN
25% SODIUM HYDROXIDE SOLUTION AT 70° F

	5s Yarn		10s Yarn		16s Yarn	
	Break Const.	Increase	Break Const.	Increase	Break Const.	Increase
Unmercerized	2218	—	1985	—	1172	—
Mercerized 5 Minutes	2893	30.5	2512	26.6	1598	36.6
Mercerized 10 Minutes	2605	17.4	2654	33.4	1854	58.2
Mercerized 15 Minutes	2634	18.8	2452	23.5	1717	46.5

Note: Conditioned at 65% RH and 70° F before breaking. Tested in skeins on a Scott Skein Tester D-H.

TABLE VI

	Weight	Warp		Filling	
	(Oz/Sq. Yd.)	Ends	Yarn No.	Picks	Yarn No.
(1) 100% Cotton	4.91	52	15.8s	50	16.8s
(2) 100% Ramie	4.96	52	15.6s	51	15.6s
(3) 100% Cotton	3.58	80	40s	40	16s
(4) 42% Cotton (Warp) 58% Ramie (Filling)	3.62	80	40s	40	16s
(5) 100% Line Flax	5.7	49	12s	42	12s
(6) 100% Ramie	5.77	49	12s	47	12s

TABLE VII

COMPARISON OF FABRIC PROPERTIES
TENSILE STRENGTH

	Pounds Breaking Strength				Pounds Breaking Strength After 48 Hours at:			
	Normal		Saturated		200° F		300° F	
Fabric	Warp	Fill	Warp	Fill	Warp	Fill	Warp	Fill
(1) Cotton	53.0	46.0	59.6	55.8	45.9	45.1	39.0	32.0
(2) Ramie	54.8	52.8	81.0	68.0	49.8	49.2	30.1	32.2
(3) Cotton	45.0	36.0	55.4	52.0	41.5	34.0	34.0	30.5
(4) Cotton-Ramie	48.5	49.0	54.9	77.4	40.1	43.8	35.0	27.5
(5) Linen	71.5	32.0	70.3	49.1	59.5	29.5	40.0	16.0
(6) Ramie	63.6	68.0	99.8	107.4	56.8	53.2	36.8	39.8

NOTE: Tested at 50% RH, 75° F.

TABLE VIII

COMPARISON OF FABRIC PROPERTIES
(Elongation)

	% Elongation Under 17.6 Lb. per Lineal In.			
	Warp		Fill	
Fabric	Under Load	Permanent Set	Under Load	Permanent Set
(1) Cotton	6.4	3.8	15.7	11.5
(2) Ramie	9.1	6.8	6.4	5.0
(3) Cotton	14.2	10.1	5.5	3.6
(4) Cotton-Ramie	12.8	9.1	1.8	1.4
(5) Linen	3.7	1.4	25.3	19.1
(6) Ramie	10.0	8.1	7.4	5.6

NOTE: Tested at 50% RH, 75° F.

elongation, and other miscellaneous properties of these fabrics. Note that all counts are cotton counts.

In stiffness tests, ramie is intermediate between cotton and linen, but this quality again is considerably dependent upon fabric construction and finishing treatment.

Preliminary trials of comparable ramie, cotton, and linen fabrics on the Du Pont Scrub Tester showed that the ramie fabric withstood approximately double the flexing strokes of the linen and the cotton samples.

This ramie fabric was approximately equal to the cotton and somewhat more resilient than the linen in recovery from creasing, where 4 cm. strips were creased in the center and then weighted flat for five minutes before measuring the normal distance between the ends of the strip. Repeated creasings did not noticeably injure any of the three fabrics more than the others for the number of tests run. A flexing machine in which 1-inch strips of another ramie fabric weighted on the free end were drawn back and forth in a 100% directional change over ¼-inch free traveling rods was abandoned after over 300,000 strokes, since no noticeable change occurred.

Launderability. Several samples of ramie fabric of construction 52 x 50, 4.73 oz./sq. yd., 16.8 warp, 16.3 filling were submitted to the Department of Textiles and Washroom Methods of the American Institute of Laundering, Joliet, Illinois. The fabrics were prepared in different ways, as follows:

Fabric No.

- A — Felled, seamed and hemmed parallel with warp.
- B — Run, turned and stitched perpendicular to warp.
- C — Buttonholes and buttons perpendicular to warp.
- D — Buttonholes parallel with warp.

They were laundered using a white work washing formula. After each washing the samples were hydroextracted to remove excess water and were finished by pressing on a steam heated garment pressing unit operating at a drying temperature of approximately 320°F. A progress report after the

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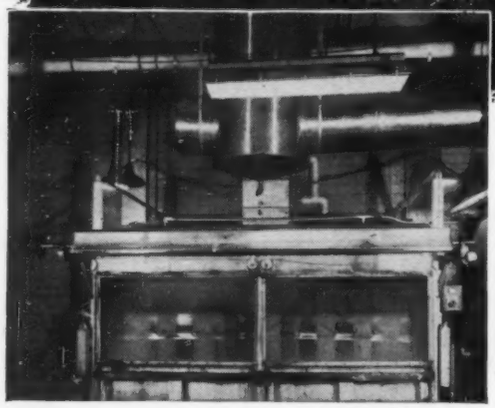

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TABLE IX

COMPARISON OF FABRIC PROPERTIES
(Miscellaneous)

Fabric	Tearing Strength (Lbs.) Normal Warp	Normal Fill	Saturated Warp	Saturated Fill	Bursting Load
(1) Cotton	4.0	4.0	2.5	2.0	46.1
(2) Ramie	8.4	7.1	11.0	9.7	81.8
(3) Cotton	5.0	4.0	3.0	3.0	66.2
(4) Cotton-Ramie	5.0	Shear	3.0	10.0	31–60
(5) Linen	5.0	5.0	4.5	5.5	52–80
(6) Ramie	11.1	11.9	14.4	12.9	84.2

NOTE: Tested at 50% RH, 75° F.

TABLE X

LAUNDERING TESTS*

Shrinkage	% Dimensional Change After 3 Launderings** Warp	Fill	% Dimensional Change After 20 Launderings** Warp	Fill	% Residual Change Beyond 3 Launderings** Warp	Fill
Ramie	—3.1	+0.6	—3.3	+0.3	—0.2	+0.3
Cotton	—7.8	+3.3	—9.2	+3.6	—1.4	+0.3
Linen	—5.3	—2.8	—7.5	—4.7	—2.2	—1.9

*American Institute of Laundering, Report No. T-218. Samples conditioned at 65% RH, 70° F unless saturated.
**Per cent shrinkage (measurements made after pressing).

175 launderings completed at this time showed the samples in a satisfactory condition. The tests are to be continued until destruction of the samples.

After 73 launderings of comparable cotton, ramie, and linen tablecloths and napkins (approximately 52 x 50), the wear-wash tests and the adaptability tests of the fabrics indicate that both the cotton and ramie exhibited superior resistance to laundering as compared to linen. Here again the cloths will be tested to destruction.

Residual dimensional changes have been determined on comparable ramie, cotton, and linen fabrics before and after 20 launderings.

As can be seen in Table X, the residual dimensional changes in ramie after three launderings are minimal; however, commercial tests have demonstrated that the sanforizing process is effective on shrink-proofing certain types of ramie fabrics.

Absorbency. For the yarns described in Table IV, the moisture pick-up on total immersion in water for varying lengths of time up to 800 minutes is shown in Figure 5. The value for the ramie yarn was 170% at 800 minutes and increased to 188% at 2460 minutes (1¾ days), while the cotton yarn was 44% at 800 minutes and 65% at 2760 minutes. The marked difference may be due, at least in part, to residual natural waxes in the cotton at the yarn stage. As the rate of sorption is well established by 2460 minutes, it is assumed that the amount of moisture in the yarns at the time of the saturated breaks (72 hours) was approximately 70% in the cotton and 195% in the ramie.

When several fabrics of types suitable for dress wear were measured for wicking effect, the results indicated that preferential absorbency may be a factor of construction and finishing treatment alone.

Mildew Resistance. Laboratory test results on mildew resistance are incomplete, but preliminary indications are that ramie fiber is attacked to a lesser extent than cotton by those spores which attack cotton most vigorously.

Outdoor exposure tests in southern Louisiana showed that the ramie fabrics were unaffected, whereas areas of mildew appeared on the cotton. For complete data on mildew resistance, samples of ramie should be tested in comparison with similar cotton and linen fabrics, by exposure to both laboratory spore cultures and to service tests in various localities in order to determine the practical advantages in various regions. Such data are not yet available.

Coolness. When cotton and ramie (fabrics 1 and 2, Table VI) were compared for coolness effect by the U. S. Testing Company, the ramie material was shown to be the more porous and cooler of the two. (See

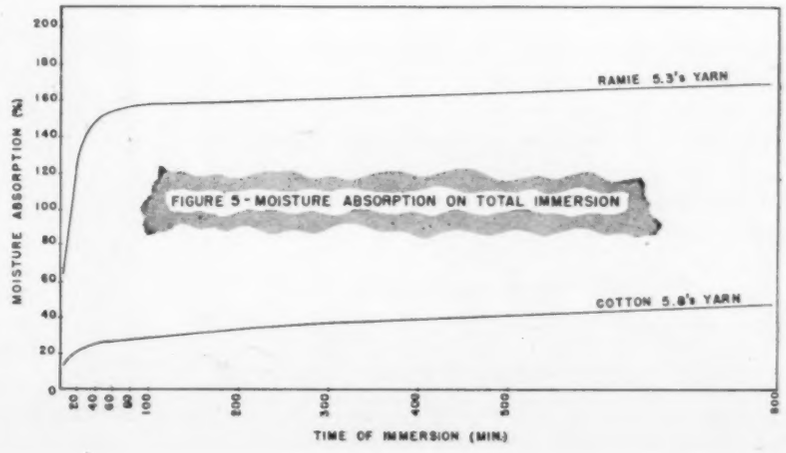

FIGURE 5 - MOISTURE ABSORPTION ON TOTAL IMMERSION

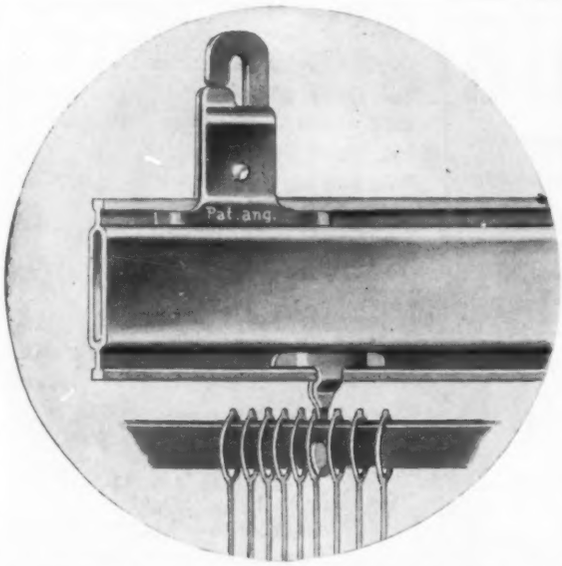

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TABLE XI

COOLNESS TESTS*

	Heat Retention °F		Porosity		
			Cu. Ft. of Air Space/Min./Sq. Ft. of Fabric		
	Equilibrium Draft	Equilibrium Light	Average	Maximum	Minimum
Ramie	11.5	14.7	185	207	172
Cotton	12.7	15.1	96.4	100	92.0
Ramie Washed 5 Times	9.5	12.8	178.4	187.0	168.0
Cotton Washed 5 Times	11.2	13.5	161.2	168.0	158.5

*U. S. Testing Co., Inc. Report No. 71829
Cloth suspended over water, fan blown over outer surface of cloth until equilibrium temperature just below cloth is reached. Lamp is then turned on above cloth and new equilibrium noted.

The heat retention values are the number of degrees above "ultimate coolness," which is defined as the figure derived by running a test with no fabric present in the apparatus.

Table XI). These figures, shown in Table XI, apply only to the fabrics tested and might vary appreciably for fabrics of widely differing porosity and thickness.

Conclusions

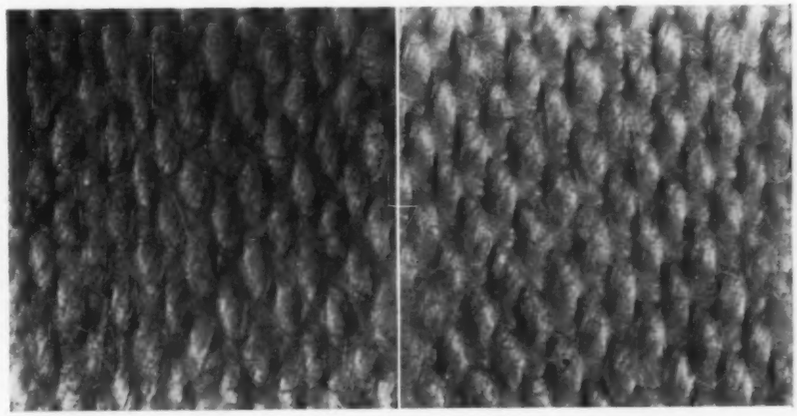
Satisfactory decortication of ramie by mechanical means, which has been an obstacle to the success of many ramie ventures in the past, is now being performed effectively in some producing areas.

While degumming treatments are generally kept in a light of utmost secrecy and many are covered by numerous and varying patents, the removal of gums can be accomplished by a variety of simple chemical processes on a laboratory scale. However, it also needs to be pointed out that the development of a quality degumming process on an economical commercial basis is complicated, and that comprehensive equipment is required for substantial volume degumming. Precise control of both chemical concentrations and technique is needed in order to adjust for the differences in character of the decorticated ramie that occurs not only from different producing areas but also from crop to crop. This control, accompanied by a background of experience in treating various types and sources of ramie, is essential in order to produce a uniform quality fiber which can be handled in a practical manner in the mill, and which will perform satisfactorily in service.

A critical key to success also lies in the textile preparation and processing of ramie fiber into yarn. The performance of this fiber on the equipment commonly used for the staple fiber systems of yarn spinning has clearly demonstrated that unless it is properly prepared, i.e., thoroughly cleaned of shive, completely degummed and fully opened, it is one of the most difficult to spin of the known textile fibers. Ramie fibers' characteristics of tenacious adherence of one fiber to another in the bundle before opening, and the individual fibers' smooth cylindrical geometry after opening are responsible for this condition.

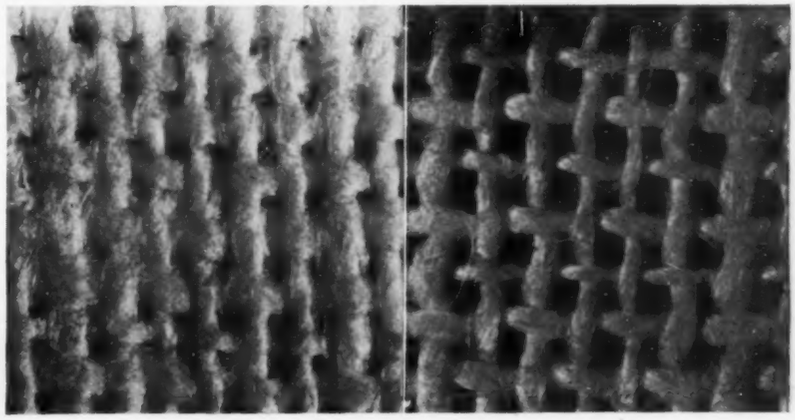
These studies indicate that the high tensile strength characteristic of ramie refers to the fiber itself and in the specific yarns and fabrics tested, the potential superiority in strength of the fiber was not realized. It has also been shown that brittleness is not an inherent characteristic of ramie as commonly believed, but is largely controlled by the type of degumming and finishing treatments given the fiber.

(*Continued on page* 172)



Above, Fig. 6 Ramie dish towel fabric before (left) and after 55 launderings. Magnified six times.

Below, Fig. 7. Linen dish towel fabric before (left) and after 55 launderings. Magnified six times.



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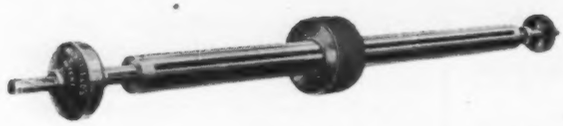

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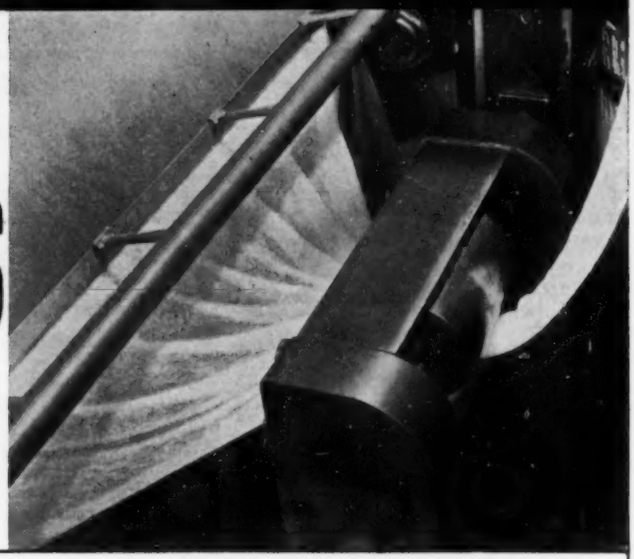

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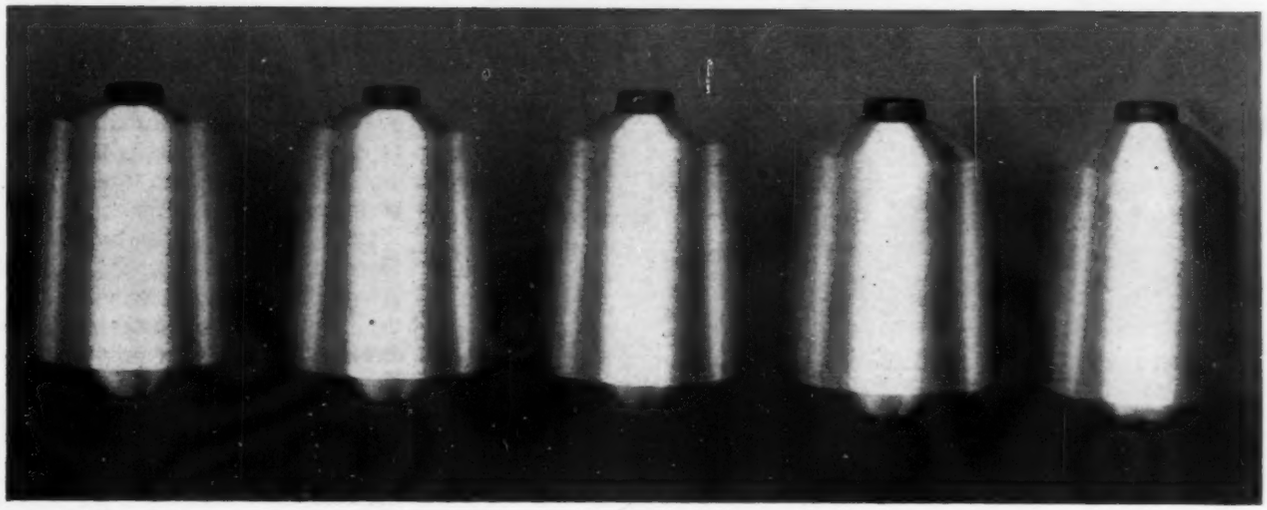


Fig. 68. Shown above are different shapes of pineapple cones which may be produced with attachment discussed here.

WINDING MACHINES —— Principles and Practices

By JESSE W. STRIBLING
Universal Winding Co.

DISCUSSED in this article is the winding of nylon yarns on pineapple cones. Details covered are: a description of the No. 50 pineapple coning attachment; how the traverse length is shortened as the cone increases in diameter; how the angle at nose and base of cone is varied; the roller bail and its adjustments; spindle speeds and number of winds; dog setting; and settings for obtaining correct tension and pressure.

Article 11: Nylon Pineapple Coning

FILAMENT nylon yarns, after having been twisted, steamed, and sized, are delivered to the No. 50 coning machines on sizing tubes, each tube containing approximately 8 ounces of yarn. On heavier deniers, over 30, some throwsters go as high as 12 ounces per sizing tube.

Before coning, the sizing tubes are stored on rack trucks in the coning area for 12 to 16 hours to permit the yarn to regain moisture from the atmosphere. This is usually referred to as the "lagging" period. The temperature in the coning area should be 76° F., with a relative humidity of 70%.

Pineapple Coning Attachment

The standard package for nylon yarns is the pineapple cone, which is wound on a 3°30′ paper cone with an attachment which shortens the traverse as the cone increases in diameter, the result being a cone with tapered ends.

By changing certain settings, to be covered in detail later, the taper, or angle, at the nose and base of the cone can be varied to produce a wide variety of shapes, as shown in Fig. 68. At the left is shown a cone with a very slight taper on the nose and maximum taper at the base. The cone on the extreme right was wound with a setting which produced the maximum taper at the nose and minimum taper at the base. The intermediate cones illustrate the variations which may be obtained between the two extremes.

A photograph of the pineapple coning attachment is reproduced in Fig. 69. The standard 3°30′ cone holder, same as for rayon coning, is used with the pineapple attach-

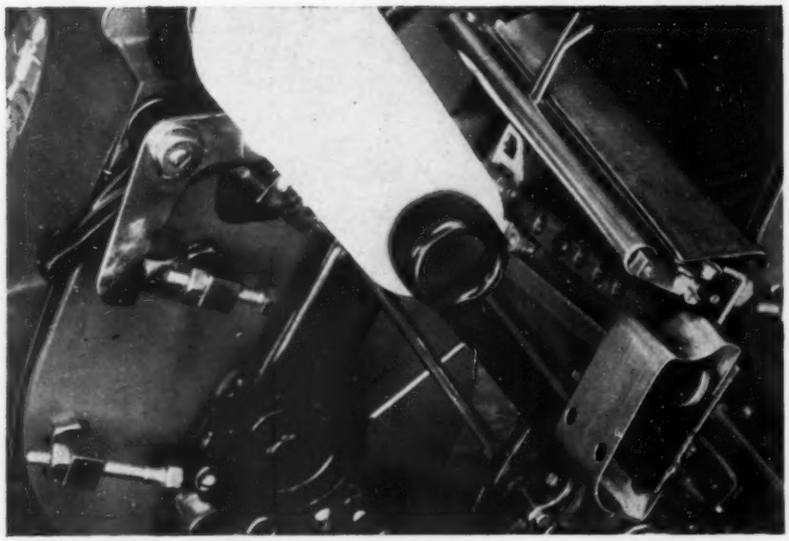


Fig. 69. Photo showing details of No. 50 pineapple coning attachment.

ment, and the same type of paper cone is also used.

Most of the special parts required for pineapple coning are assembled to the special traverse frame back, which is attached to the standard traverse frame in the usual manner. These parts, together with the builder cam and its holder, are the principal ones which are not standard for other types of coning. However, possibly it should be pointed out that screw-type upper and lower traverse frame stops are always used with pineapple coning, whereas this may not be true on other types of coning.

The length of traverse, as well as the taper at the ends of the cone, is controlled by the taper bar, the bell crank and carrier assembly and the builder cam (see Fig. 70). The bell crank and carrier assembly consists of the bell crank carrier, the bell crank (attached to the carrier by a rivet), and the thread guide assembly (guide and holder). The thread guide traverses the yarn and is subject to wear; as it becomes cut, it is easily replaced.

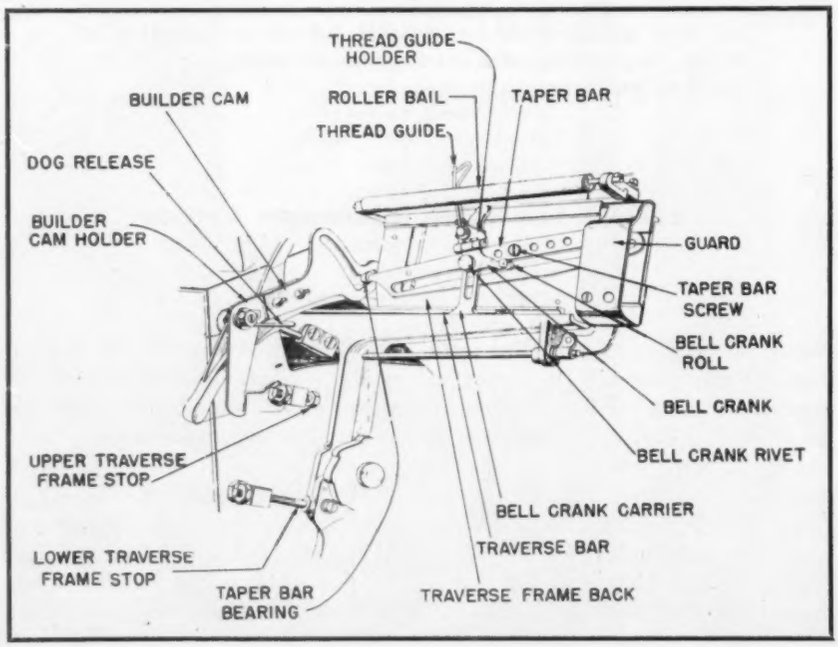
The taper bar is attached to the traverse frame back by the taper bar screw, around which it pivots. It will be observed that there are six holes for the taper bar screw in the taper bar, and there are also six corresponding tapped holes in the traverse frame back. (One of the holes, No. 1, is not shown in Fig. 70, being under the guard. It is seldom used.) Figure 71 shows these holes in the traverse frame back and their numbers, from front to rear.

Changing the taper bar screw from one hole to another does not affect the length of traverse nor the amount of shortening; the different holes are provided to change the angle at the nose and base of the cone. Moving the screw to a hole farther forward increases the angle at the base of the cone and decreases the angle at the nose. Conversely, moving the screw to a hole farther to the rear increases the angle at the nose and decreases it at the base.

When the screw is moved to another hole, it is important that the washer be replaced on the screw, between the taper bar and the traverse frame back.

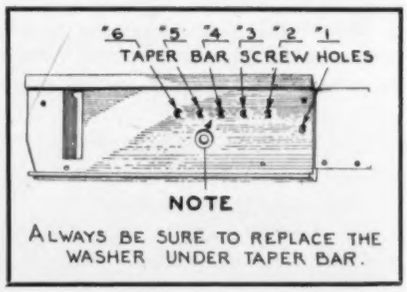
As can be seen from Fig. 70, the bell crank and carrier assembly fits into the end of the traverse bar, same as the thread guide holder for other types of winding on the No. 50 machine. In pineapple coning, a standard 5" main cam is used for all lengths of traverse between five and six inches. It is reversed in position; that is, the hub extension is toward the front of the machine.

By referring to Fig. 70, it can



Left, Fig. 70. Line drawing of pineapple coning attachment.

Below, Fig. 71. Showing numbered holes, from front to rear, in traverse frame back for taper bar screw (see Table 8).



be seen that, if the slot in the taper bar is horizontal, the yarn traverse will be the same as that of the main cam, five inches. If the left hand end of the taper bar is raised, causing it to pivot around the taper bar screw, it can be seen that the yarn traverse will be lengthened beyond the five-inch throw of the cam. As the left hand end of the taper bar is lowered, thus changing the angle of the slot, the traverse is shortened. This lengthening and shortening of the traverse is caused by the bell crank roll, which runs in the taper bar slot, throwing the thread guide to the left or right as the bell crank pivots around its rivet.

The taper bar bearing, on the left hand end of the taper bar, operates in the angular slot of the builder cam. At the start of a cone, this bearing is near the upper end of the slot, thus producing the maximum traverse. As the cone increases in diameter, and the traverse frame back moves away from the cone, the angle of the builder cam slot moves the left hand end of the taper bar downward, which shortens the traverse of the yarn, as described in the preceding paragraph. The minimum traverse is obtained when the taper bar bearing reaches the elbow of the slot in the builder cam, and this position represents the maximum diameter of cone which should be wound with that builder cam. The slot is extended horizontally a short distance beyond the elbow only for permitting the traverse frame back to be moved away from the cone surface to facilitate piecing up an end near the full diameter of cone, or to permit doffing a full cone.

As has been stated, all pineapple cones are wound with a 5" main cam. The length of yarn traverse is controlled by the builder cam. Shown in Fig. 72 (at the right) are the four standard builder cams. At the left are shown the two builder cam holders. The builder cams are provided with horizontal adjusting slots, and the builder cam is attached to its holder by two screws, which pass through the adjusting slots. The builder cams and holders are identified by numbers stamped on the parts (except that one of the holders carries no number, as noted below).

Builder Cams and Holders

Builder cam No. 5 is used for traverse lengths under 5½ inches and for a medium-size cone, in outside base diameter. Builder cam No. 6 is used for traverse lengths greater than 5½ inches and for medium-size cones. Cam No. 8 is the same as No. 6, except that it provides for slightly more taper at the ends of the cone. Cam No. 15 is for large diameter packages only (around 6 inches). With this builder cam, the taper on the cone is much less than with the other cams.

The builder cam holder which

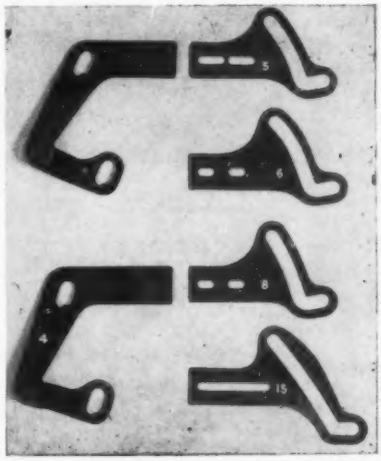


Fig. 72. Standard builder cam holders and builder cams for pineapple attachment.

is not stamped with a number, shown at upper left in Fig. 72, is used for traverse lengths under 5½ inches. The No. 4 holder is used for traverse lengths of 5½ inches or longer. Accurate adjustment of traverse length is obtained by moving the builder cam to the right or left, by means of the horizontal adjusting slots.

It will be observed from Fig. 72 that there are up-and-down adjusting slots in the builder cam holders. These adjusting slots are provided to obtain an accurate location of the winding point on the cone, after the traverse bar is screwed the proper distance into the traverse slide. Raising the builder cam and holder assembly locates the winding point farther toward the nose of the cone.

Possibly it should be pointed out that the horizontal adjustment of the builder cam and the vertical adjustment of the cam holder affect each other to some extent. It usually requires a little experimenting to determine the exact adjustments of each to obtain the shape of cone desired and the desired location of traverse on the cone. It should be remembered that the position of the taper bar screw in the taper bar affects only the taper at the nose and base of the cone and has no effect on the length of traverse.

While the traverse bar has no effect on the length of traverse, specific traverse bars are recommended for certain traverse lengths and tapers. Table 8 gives the various tapers and traverses which can be obtained with the pineapple coning attachment on the No. 50 machine, and it includes the proper traverse bar and slide assembly to use for each cone, as well as the number of threads the traverse bar should be screwed into the traverse slide to obtain the location required on the cone.

It will be observed that Table 8 includes the complete part numbers for the builder cams, builder cam holders, and traverse bar and slide assemblies. In the foregoing discussion on builder cams and holders, only the distinctive part of the complete part number was given; for example, builder cam No. 5 is 50-3018-5P3 in the table, the number immediately following the second hyphen being the number of the cam. Also, the builder cam holder which is not stamped with a number is 50-3017P3 in the table, and builder cam holder No. 4, as referred to before, is listed as 50-3017-4P3 in the table.

Adjusting the Roller Bail

The roller bail, which contacts the surface of the cone, is designed to revolve freely between ball bearings which fit inside the ends of the bail. It is important that this bail turn freely; if the bearings are set too tight, the bail will not run up to speed; if too loose,

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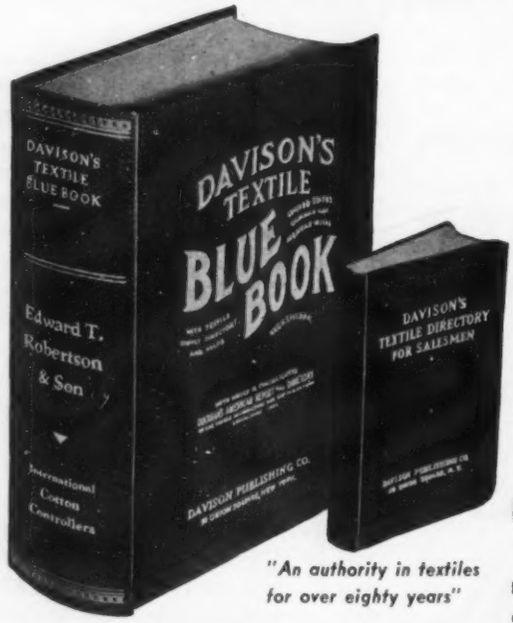
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there will be side play which will cause bad winding.

The bearings should be kept clean, for dirt or waste might cause the roller bail to revolve at varying speeds. The rear ball

TABLE 8. Standard Pineapple Cone Shapes. 3° 30′ taper; 5" traverse cam.

APPROX. ANGLE BASE	APPROX. ANGLE NOSE	Max Yarn Thickness	HOLE NO.	BUILDER CAM	CAM HOLDER	TRAVERSE BAR & SLIDE	THRDS. IN. TR. SLIDE*
5" Yarn Traverse							
50°	8°	7/8 "	2	50-3018-5P3	50-3017P3	50-659-73X	25
50°	16°	7/8 "	3	50-3018-5P3	50-3017P3	50-659-73X	25
49°	26°	7/8 "	4	50-3018-5P3	50-3017P3	50-659-73X	25
49°	37°	7/8 "	5	50-3018-5P3	50-3017P3	50-659-73X	25
47°	39°	13/16"	6	50-3018-5P3	50-3017P3	50-659-73X	25
5-1/4" Yarn Traverse							
46°	8°	1"	2	50-3018-5P3	50-3017P3	50-659-75X	29
48°	15°	1"	3	50-3018-5P3	50-3017P3	50-659-75X	29
47°	28°	15/16"	4	50-3018-5P3	50-3017P3	50-659-75X	33
45°	35°	15/16"	5	50-3018-5P3	50-3017P3	50-659-73X	31
40°	50°	15/16"	6	50-3018-5P3	50-3017P3	50-659-73X	
5-1/2" Yarn Traverse							
44°	15°	1 1/8"	2	50-3018-5P3	50-3017-4P3	50-659-75X	22
43°	23°	1 1/16"	3	50-3018-5P3	50-3017-4P3	50-659-75X	28
43°	31°	1 1/16"	4	50-3018-5P3	50-3017-4P3	50-659-75X	28
42°	39°	1"	5	50-3018-5P3	50-3017-4P3	50-659-75X	30
39°	49°	1"	6	50-3018-5P3	50-3017-4P3	50-659-75X	32
5-3/4" Yarn Traverse							
48°	19°	1 1/16"	2	50-3018-8P3	50-3017-4P3	50-659-90X	22
48°	27°	1 1/16"	3	50-3018-8P3	50-3017-4P3	50-659-90X	25
46°	18°	1 1/4 "	2	50-3018-6P3	50-3017-4P3	50-659-90X	27
46°	35°	1 1/16"	4	50-3018-8P3	50-3017-4P3	50-659-90X	27
44°	25°	1 3/16"	3	50-3018-6P3	50-3017-4P3	50-659-90X	25
43°	44°	1 1/16"	5	50-3018-8P3	50-3017-4P3	50-659-90X	31
42°	31°	1 3/16"	4	50-3018-6P3	50-3017-4P3	50-659-90X	27
41°	41°	1 1/8 "	5	50-3018-6P3	50-3017P3	50-659-90X	31
41°	57°	15/16"	6	50-3018-8P3	50-3017-4P3	50-659-75X	27
40°	52°	1 1/8 "	6	50-3018-6P3	50-3017P3	50-659-75X	27
6" Yarn Traverse							
51°	** 0°	1 1/4 "	1	50-3018-6P3	50-3017-4P3	50-659-90X	24
47°	19°	1 1/4 "	2	50-3018-6P3	50-3017-4P3	50-659-90X	18
45°	28°	1 3/16"	3	50-3018-6P3	50-3017-4P3	50-659-90X	22
43°	35°	1 3/16"	4	50-3018-6P3	50-3017-4P3	50-659-90X	28
42°	42°	1 1/8 "	5	50-3018-6P3	50-3017-4P3	50-659-90X	30
38°	50°	1 1/16"	6	50-3018-6P3	50-3017-4P3	50-659-90X	33
6" Yarn Traverse							
40°	** 0°	1 1/2 "	1	50-3018-15P3	50-3017-4P3	50-659-90X	24
35°	15°	2"	2	50-3018-15P3	50-3017-4P3	50-659-90X	18
33°	21°	2"	3	50-3018-15P3	50-3017-4P3	50-659-90X	22
34°	27°	2"	4	50-3018-15P3	50-3017-4P3	50-659-90X	28
29°	32°	2"	5	50-3018-15P3	50-3017-4P3	50-659-90X	30
29°	43°	2"	6	50-3018-15P3	50-3017-4P3	50-659-90X	33

*Use traverse bars listed, screwing them into the traverse slide the number of threads indicated. In no case less than 18 threads.

**Straight nose taper base cones require use of 50-2885-10X taper bar.

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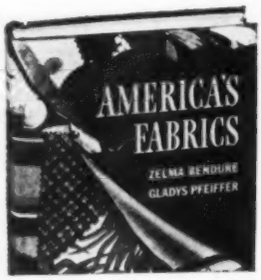

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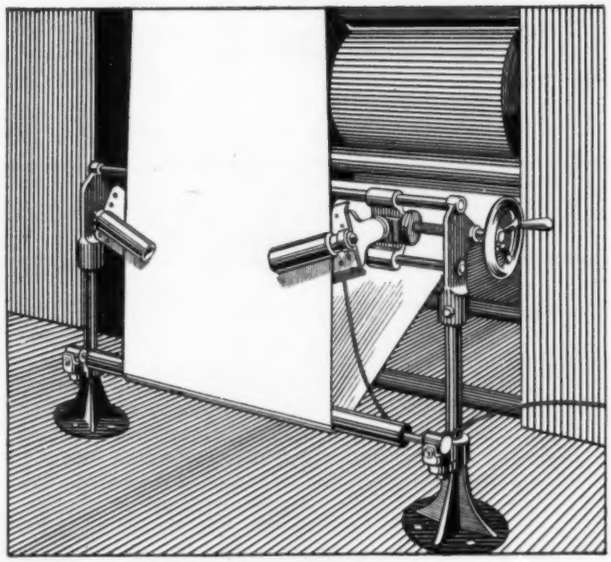

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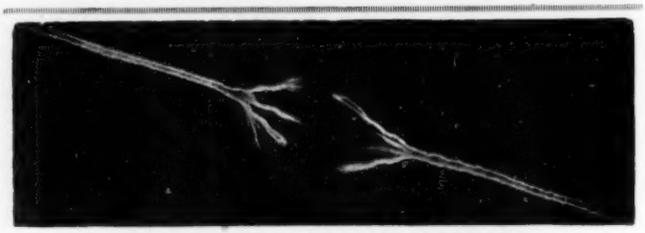

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bearing is held in a fixed position, but at the front end, the bearing is secured by a clamp attached by a screw to the under side of the holder, as shown at the right hand end of the roller bail in Fig. 73. After loosening this screw, the front bearing can be drawn forward, clearing the bail so that the bearing can be easily lifted from the machine for cleaning or lubricating. The bail can then be removed from the rear bearing, so that it can also be cleaned or lubricated. It is recommended that both roller bail bearings be smeared every two or three weeks with vaseline or petrolatum.

When replacing these parts, care should be taken to see that the roller bail is mounted on the bearings with little or no sideplay, and yet is permitted to rotate freely. If the roll binds and does not turn at its proper speed, it may shorten the traverse of the yarn and may "scramble" the surface of the package.

The grooved section of the front bearing is positioned on top, making it easy to cut away any yarn or waste that may wrap around the bearing. At the inner end of the groove is a hole, serving as a vent for the lubricating element. The rear bearing has a similar hole and a short groove.

The ball bearing holders are attached to a yoke, as shown in Fig. 73. This yoke is attached to the traverse frame back as shown in Fig. 74 It is pivoted in the center, as shown at (A), so that the roller bail can be lined up with the taper of the empty cone. The adjusting screws (B) should be turned up lightly with the fingers while the roller bail is in contact with the empty cone. While the locknut is being tightened, an Allen setscrew wrench is held in the end of the hollow-head screw to keep it from turning and upsetting the adjustment. The screw near the base of the cone should be tightened first; then the one near the nose. Any cramping of the yoke by these screws may create a misalignment of the ball bearing holders, which will cause the bearings to bind inside the roller bail.

Every precaution must be taken to insure the roller bails revolving freely.

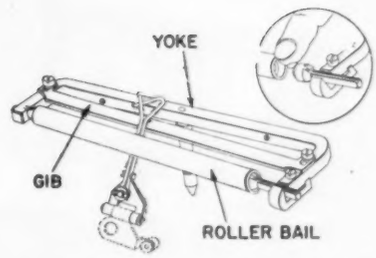


Fig. 73. Details of roller ball, gib, and yoke assembly.

Attached to the yoke by screws is the gib, as shown in Fig. 73. The space between the gib and the roller bail provides a slot in which the thread guide traverses. It will be observed from Fig. 73 that there is an adjusting slot in each end of the gib, which should be set so that there will be .030" to .040" clearance between the thread guide and the surface of the roller bail. After setting the gib, the thread guide should be traversed backward and forward, from one end of the stroke to the other, to make sure that the guide clears at all points.

Winds and Spindle Speed

The gear gain attachment, same as used for rayon coning, is always used with the pineapple coning attachment for nylon. While some throwsters have different ideas as to the number of winds to use, experience has shown that, as a rule, best results are obtained with 3¼ winds. The maximum spindle speed which should be used with the pineapple coning attachment is 1250 rpm. Good results cannot be expected if higher spindle speeds are used. At a spindle speed of 1250 rpm, the average yarn speed will be about 285 ypm on a 3¾" diameter pineapple cone.

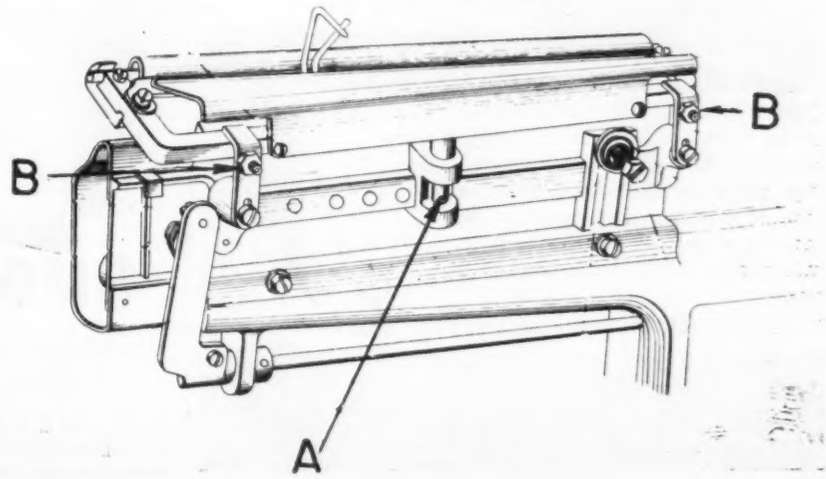
Setting Traverse Frame Stops

Screw-type traverse frame stops, previously mentioned (and shown at D in Fig. 75), are necessary to obtain the accuracy of settings required in pineapple coning. The upper stop should be adjusted so that the roller bail will touch the high point of the empty paper cone, but the bail *must not* touch the empty cone holder.

The lower traverse frame stop should be set so that it will contact, and stop, the traverse frame when the taper bar bearing reaches a point 3/16" from the right hand end of the horizontal section of the builder cam slot (to the right of the elbow), as shown in Fig. 70.

The regular two-piece dog is used in pineapple coning. The standard "bee-hive" type dog lever spring is used, as covered in Article 3, and a dog release is provided, as shown in Fig. 70, to release the dog from the segment groove and prevent jamming when the traverse frame back is at its farthest position from the package. The dog release should be adjusted so that it contacts both the dog and segment when the taper bar bearing is midway in the horizontal section of the

Fig. 74. Showing the yoke assembly attached to traverse frame back.



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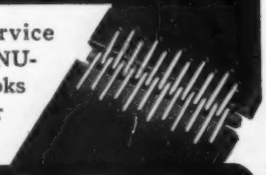

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builder cam groove. Moving the traverse frame back farther outward will cause the dog release to disengage the dog from the segment.

The dog lever should be adjusted with the weight of the lever alone holding the dog in the segment, so that the traverse frame back, while the spindle is running, will creep toward the package to insure the roller bail being in contact with the surface of the cone at all times. Added tension on the dog lever will act as uncontrolled pressure.

At the start of winding a cone, and after each stop, the operator should hold the traverse frame back slightly away from the package until a few wraps of yarn have been wound. This will prevent the yarn from lapping around the roller bail. After a few wraps have been wound, the bail is moved up against the surface of the cone.

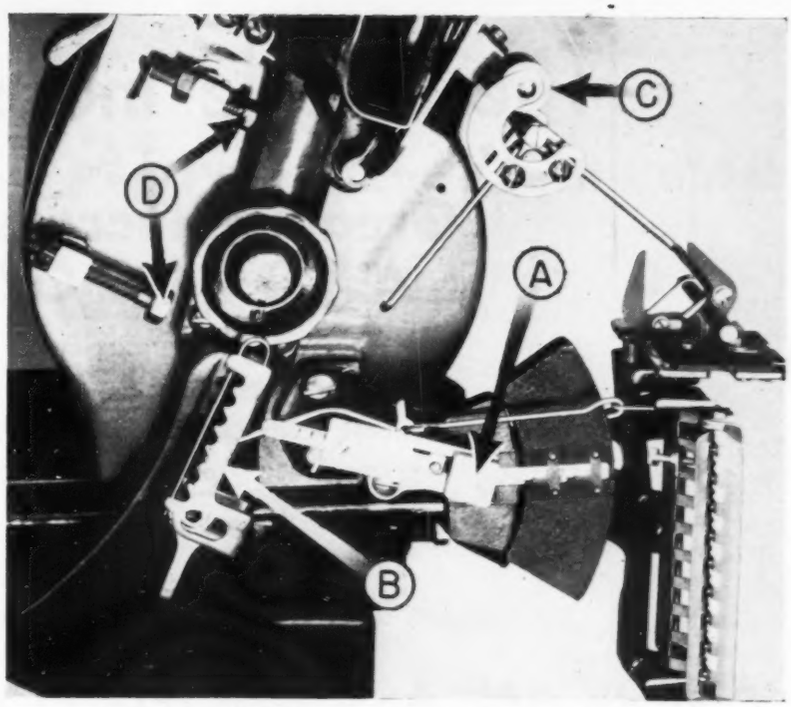

Fig. 75. A No. 50 head set up for pineapple coning.

Tension and Pressure

In winding nylon yarns, the standard anti-wear tension, as covered in Article 8, is used. Shown in Fig. 75 is a No. 50 head set up for nylon. As shown, the diff tension counterweight (A) is used, same as for rayon. It is usually found that proper tension is obtained when this weight is attached to the diff tension lever between positions 4 and 5. However, the actual amount of tension on the yarn should be checked with a Tensometer, as discussed in Article 8 on rayon coning. In setting up for nylon, Tensometer readings should be taken at the beginning and the end of the cone on each spindle.

At the start of the cone on most nylon yarns, the tension should be between 4 and 6 grams. The tension release should be set so that all applied tension is removed at the outside diameter of a cone, the only tension on the yarn being that obtained by frictional contact between the yarn and the several parts which it passes through. This will usually be found to be between 2 and 3 grams.

In Article 9 was discussed the tension closer on the anti-wear tension, the closer being a plunger acting as a stop to prevent the movable tension from opening too wide.

To adjust this plunger for nylon winding, three ends of yarn should be twisted together and held taut between the two tension grids. The movable tension will then be in its widest open position. The plunger should be adjusted to barely touch the lip on the rear of the movable tension in this position.

The usual amount of pressure in coning nylon is obtained by using a 10-ounce and a 5-ounce pressure weight (total of 15 ounces) on the diff pressure lever, as seen in Fig. 75, the 5-ounce weight being inside (to the left of) the 10-ounce weight.

The diff pressure connecting rod is set in the fifth hole from the top of the adjuster on the traverse frame counterweight, as shown at (B) in Fig. 75. In winding nylon, it is sometimes found preferable for the diff tension and diff pressure levers to be set about 15° above horizontal at the start of a cone.

The pressure weights should be adjusted on the diff pressure lever so that there will be 30 to 35 ounces of pressure at the start of winding, using a pressure gauge, as covered in Article 8. There should be about 8 ounces of pressure at the finish of a cone containing from 9 to 12 ounces of yarn. A 12-ounce cone will measure about 3¾ inches in diameter at the base of the pineapple.

The finished package should have a Densimeter reading between 40 and 50.

The breakage lever balance, shown at (C) in Fig. 75, is a necessity on nylon. The position of the weight on this balance is adjustable, and its purpose is to balance the breakage lever and prevent it from falling and stopping the spindle in winding yarns under such very light tension. The balance should be adjusted so that, with the breakage lever in running position, the weight is only slightly to the right of top center, just enough to cause the breakage lever to fall when the yarn breaks or runs out.

The diff pressure connecting rod collar, as discussed in Article 10 on rayon coning, is also used on nylon.

(Article 12, to appear in an early issue, will deal with the emulsion attachment for the No. 50 machine and its use for applying oil to nylon and rayon yarns.)

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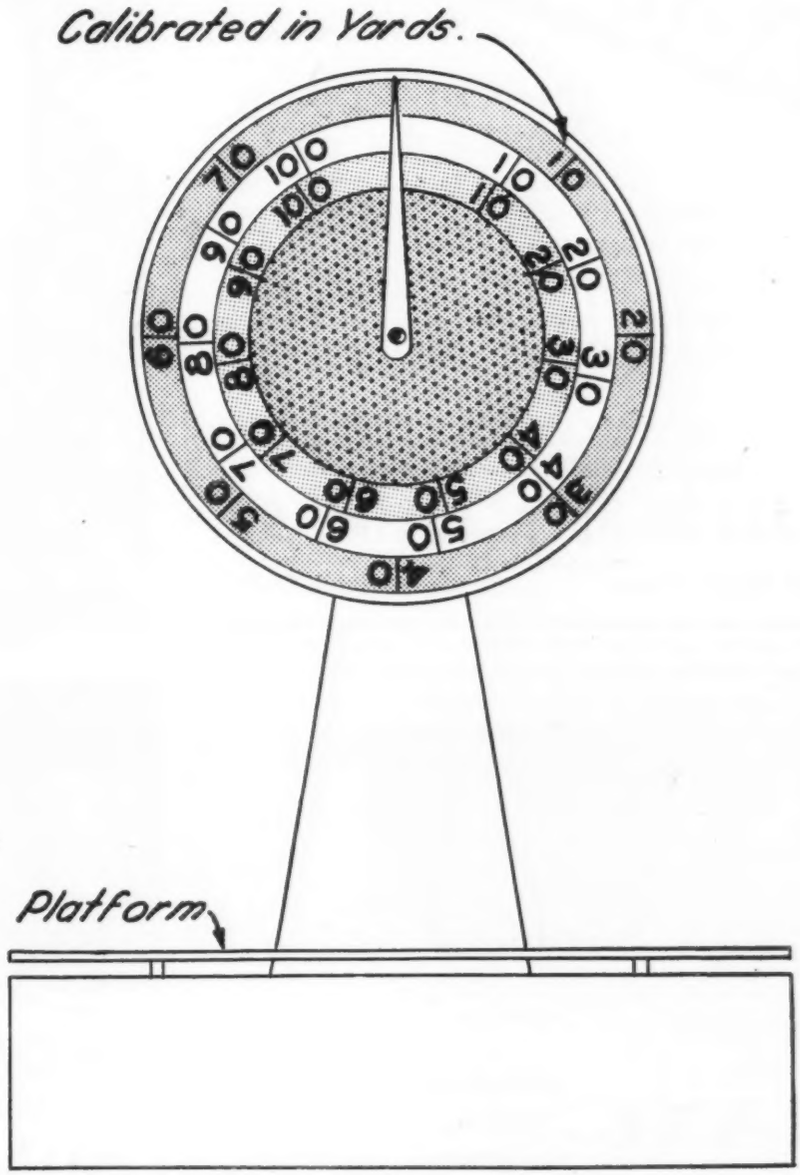
Scale Checks Yards Per Pound and Cloth Folder

The winning entry for the "kink" contest that ended May 10 was announced in the June issue of "Textile Industries" and is presented here.

Another contest is now under way. For rules and other details, see page 137 of this issue.



THE YARDS per pound of finished goods can be checked directly, without calculating, by using a direct reading dial superimposed on the face of the scale. Each dial (as shown in the illustration) is calibrated to give a yardage reading for one style by use of the following formula:

Finished Yards per pound × pounds = yards

The dial readings are used as follows: yardage tags are placed on the cloth after it is folded on the folder. The fold of cloth is then placed on the scales, and the dial reading of the particular style is observed. If the dial reading coincides with the yardage indicated on the tag, the standard weight of the cloth is correct. Larger and smaller readings indicate that the standard weight is incorrect.

This scale provides a quick method of determining the correctness of the finished weight, and it also provides a check on the folder reading.

CONTRIBUTOR No. 8088

Remedy for Filling Breakage

Question Briefed: *We believe our filling breakage on X and X-2 looms is excessive. We are running 2.85 sheeting, 17s filling, single change, double fork, using the Midget feeler. Conventional bristles are used in the shuttle.* (CONTRIBUTOR No. 8066, *May*, 1948.)

EDITOR TEXTILE INDUSTRIES:

Trouble with breaking filling is encountered as the speed of the loom is increased. It is not believed that filling breaking is inherent with the model of the loom, but is more likely to be caused by faster speed and inadequate loom fixing practices.

Some mills have a regular system for either the loom fixer or a special "shuttle man" to dress the shuttle at scheduled intervals. This man is required to tighten the shuttle spring, shuttle eye, deter-

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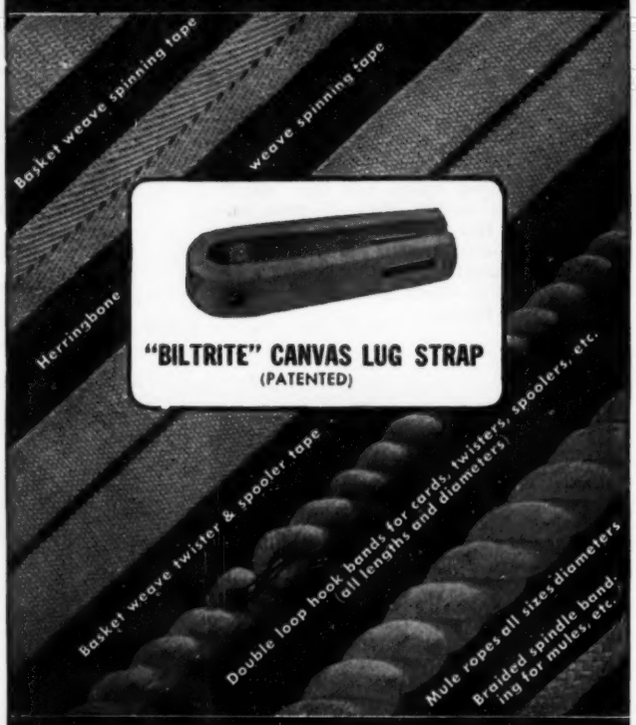
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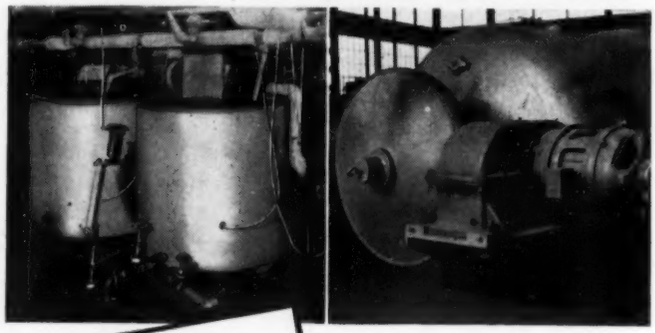

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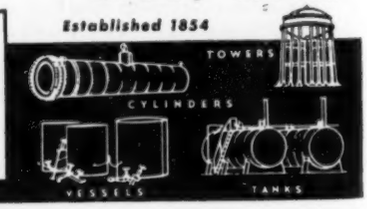


mine if the bristles in the shuttle are at the proper angle and in the proper amount, groove out the shuttle groove where it wears thin, remove any burrs that may be on the shuttle, and apply a dressing (such as tallow) to the shuttle.

On high speed looms it is difficult to keep the shuttle in good condition, but it is essential that the shuttle be maintained in order that there may be a reduction in filling stops.

Other points to have the fixers watch carefully are the rough places on the pickers, box fronts, lay end plate, race plate, and grate.

Occasionally the filling fork, which directs the tip of the bobbin into the shuttle on the change, becomes rough and sharpened. This will cut the tip of the bobbin, leaving a burr that breaks the filling as the shuttle passes through the shed.

It is necessary to have closer supervision of the loom fixers to have them keep the shuttle properly boxed, pickers parallel, and the loom properly aligned for high speed operation.

The opinion has been expressed that conditioning of the filling may have some bearing on the filling breaking at high speed. This does not indicate that the conditioning of the filling weakens the filling, but it does mean that the kink is removed and the twist is set, so that in high speed operation the filling can balloon as the shuttle goes into the box. This permits the filling to leave the side of the shuttle and to balloon over the top of the box and to catch on the leather.

CONTRIBUTOR No. 8066 could run a test with the filling conditioned and without being conditioned. However, trouble may develop from "kinky filling," and it will be necessary to determine whether you would prefer to have kinky filling or continue to have filling breaking on passing through the shed. CONTRIBUTOR No. 8067

Chute Helps Keep Bobbins in Can

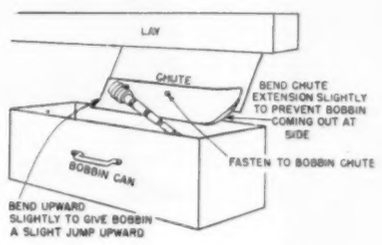
This item was submitted in a "kink" contest.

EDITOR TEXTILE INDUSTRIES:

A walk through any weave shed will often reveal that numerous loom bobbins are lying on the floor around the battery side of the loom. Occasionally, some of these bobbins are not completely empty, due to slightly worn feeler tips making the transfer before the yarn has cleared the bobbin.

In most instances, bobbins will become greasy upon striking the floor.

If they are picked up and placed in the can, the grease will be transmitted to other emptied bobbins, thus causing trouble if filled without washing off the grease. On refills, the yarn wound next to the barrel will become tacky and drag too harshly. This often results in broken picks, shiners and numerous defects in the cloth. To prevent just such trouble and many other breaks caused by bobbins not going into the can after the transfer, a device can be made (see accompanying sketch) and secured to the bobbin chute to minimize such trouble. The device can be made of sheet metal. To


LAY
CHUTE
BEND CHUTE EXTENSION SLIGHTLY TO PREVENT BOBBIN COMING OUT AT SIDE
FASTEN TO BOBBIN CHUTE
BOBBIN CAN
BEND UPWARD SLIGHTLY TO GIVE BOBBIN A SLIGHT JUMP UPWARD

make the installation, drill holes through the cast plate, and attach the chute extension with two short bolts. When the bobbin comes down the chute after a retarded transfer, it strikes the edge of the plate attachment, and the upturned end bounces the bobbin into the can.

CONTRIBUTOR No. 8055

Beaming Rayon Crepes

THE USUAL practice when beaming off rayon crepes is to employ a roller without flanges.

There are several different methods of attaching the sections to the roller. A point which has to be most carefully watched is to insure that the knots tied are not bulky. Otherwise, they will create faults in the woven fabric. If the sections are nailed or otherwise fastened directly to the beam, there will be waste of at least a yard or more. The best method is to have a piece of stout canvas or cloth a yard or more in length with eyelet holes (not too big) to which bunches of ends at the commencement of beaming off may be fastened. The fewer the holes provided for fastening, the larger will be the bunch of ends likely to cause faults.

The additional cost of fitting these canvasses to the rollers will be well repaid, as they enable the warp to be woven to the end without creating waste yarn. Waste always occurs by the other method, and particularly in looms where there is a separate beam stand.

A firm beam is very necessary in rayon crepes. Good warping is of course a first essential in the production of a sound beam. If the sections are not well built without ridges or troughs, adequate tension, etc., a satisfactory beam cannot be made. Even when the warp has been well placed on the swift, slight irregularities may occur. Where these become noticeable, clean sheets of paper are inserted across the full width of the beam, and this helps to even out any irregularities which might occur.

As mentioned, the roller usually is without flanges and may develop slack side ends. If the sheets of paper which are inserted from time to time are wider than the beam width, the overhanging ends of paper can be turned in to help overcome this fault.

Crepe yarns are very lively. They may contain 60 or 70 turns per inch, and various methods are

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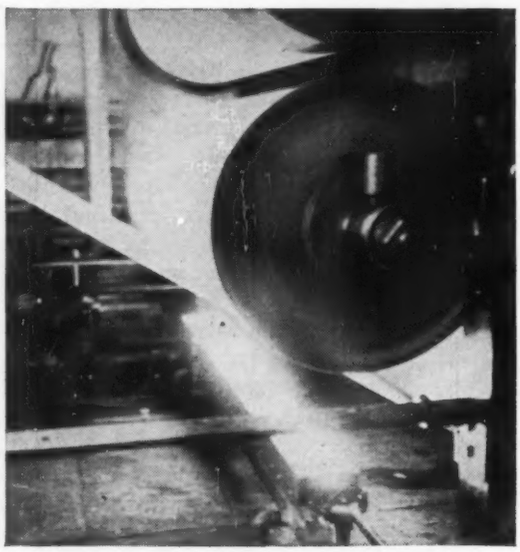

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adopted in an endeavor to counteract the natural tendency of highly twisted yarn to snarl. Such remedies as steaming, maintenance of certain relative humidities, sizing, etc., have been used for this purpose. The liveliness still persists even when the warp is on the roller. A method has been adopted whereby stiff sheets of paper or cardboard are inserted before the end of the warp. The final layers of the warp hold the sheets of stiff paper in position, and if the beam has to remain in stock for some time, any tendency of the yarn to curl will be controlled.

CONTRIBUTOR No. 8063

Straightening Tool for Transfer Forks

EDITOR TEXTILE INDUSTRIES:

Fixers on Draper Looms are aware of the trouble that is sometimes encountered when the transfer fork (or bobbin guide) becomes bent. Considerable work is necessary to remove this part from the loom, take it to the work bench, straighten it, and put it back on the loom, to say nothing about the lost time involved.

Figures No. 1, 2, and 3 illustrate a simple and effective tool for doing this job without removing the transfer fork from the loom. This

Fig. 1. Tool for straightening transfer forks. See sketches below for details.

tool can be made in any machine shop from ¾-inch steel rod. The details are shown in Figure 2.

Figure No. 3 shows the tool in position to straighten the transfer fork. By simply changing the position of the tool, the transfer fork may be bent in any direction. Care should be taken not to bend the fork any more than is necessary because this tool is very powerful, and excessive bending would cause the fork to break off. With reasonable care the fork will not break because the end of the tool nearest the bracket holding the transfer fork will support the fork as the extreme end is being bent.

CONTRIBUTOR No. 8043

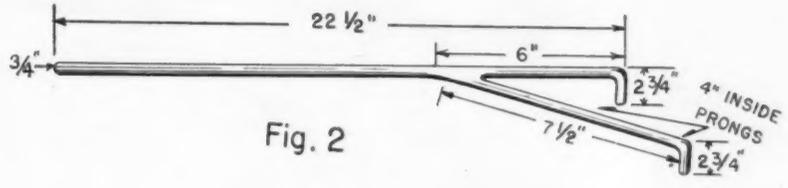


Fig. 2

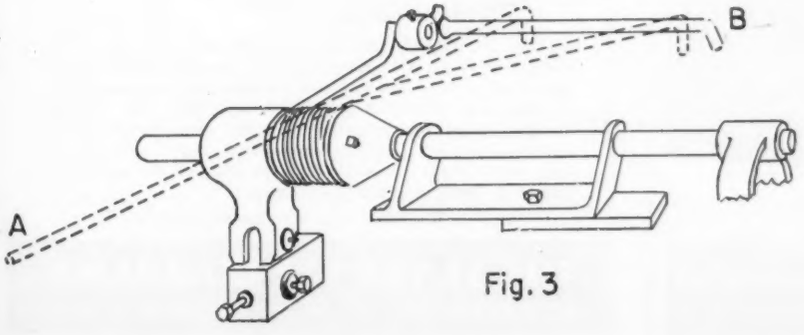
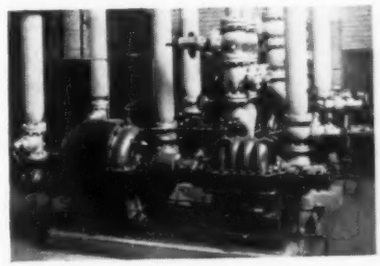


Fig. 3

Baby Your Pumps

"SEND THE operatives home until tomorrow — the pump broke down." In many cases, that order implies bad inspection practices, or inefficient repair work. In all cases, it implies loss of time and money.

If the plant is to maintain maximum economical usage from its pumps, they must be given tender and loving care day in and day out; keeping normal wear down is



one of the most important factors in achieving such usage.

Here are a dozen suggestions on "babying" pumps as offered by experts:

1. Have the plant superintendent make a daily check-up. It can be done quickly and smoothly so that any ordinary trouble will readily be spotted.

2. Hand-oil and grease every pump regularly; take no chances of skipping a day.

3. Watch for leakage, and make it plant policy that all pump leakages must be reported immediately; a leaking pump is of little value even though it continues to do a half-hearted job.

4. Make certain that seals are examined at least once a month and if this inspection reveals the slightest flaw see that packing is renewed.

5. Beware of unusual noises within a pump; they are always a warning of some trouble to come.

6. Whenever break-down maintenance inspections are made be sure to check closely on liners of pump cylinders; corrosion is fre-

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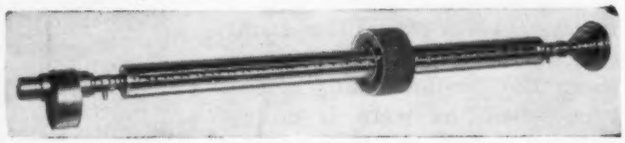

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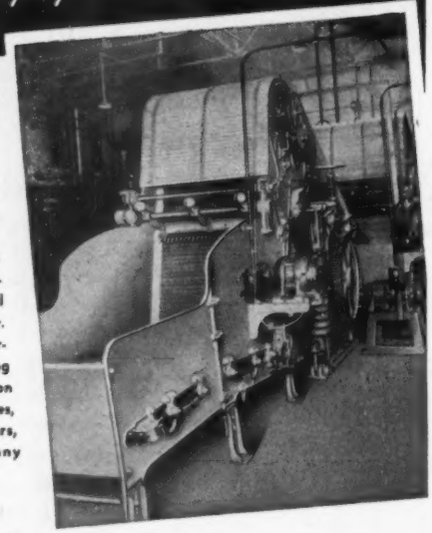

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quently present and always harmful at this spot.

7. Check pump valves on every inspection.

8. When packings become dry replace them immediately.

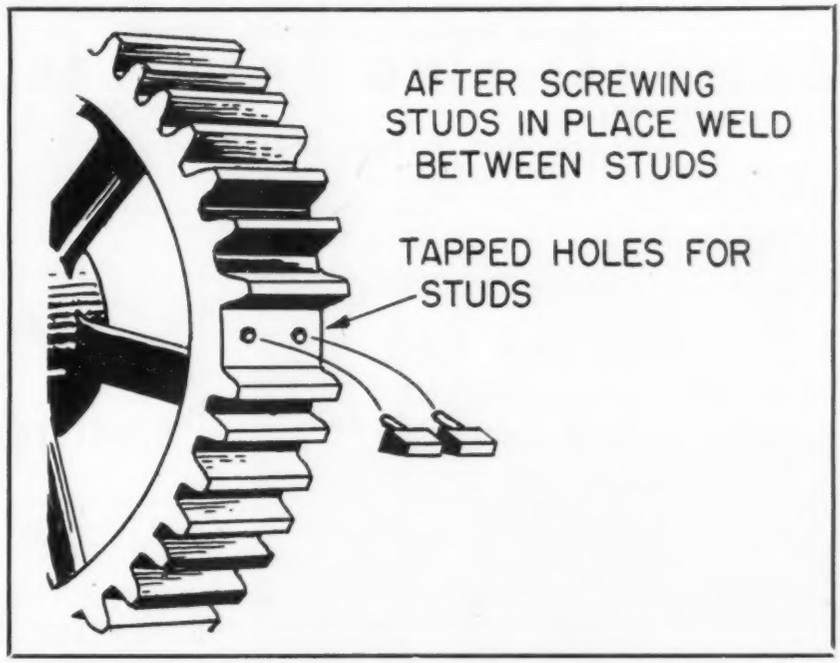
9. When suction troubles develop, check and see if an increased load has been recently put on the pump; if that has been done, the trouble is probably that the original lines are too small for the new load.

10. Check pump shafts regularly for alignment.

11. Don't expect too much of packing materials. Primarily they are seals and nothing more; they cannot correct a scored shaft or rod, or bad alignment in the pump itself.

12. Never use over-size packings; that is asking for the speedy development of excess friction.

Quick Gear Repair



EDITOR TEXTILE INDUSTRIES:

Before taking off a heavy gear that has become troublesome due to broken gear teeth, it is best to make an appraisal of the job. It pays to determine the amount of time required to remove the gear and make a replacement, as well as other possible means of remedying the trouble.

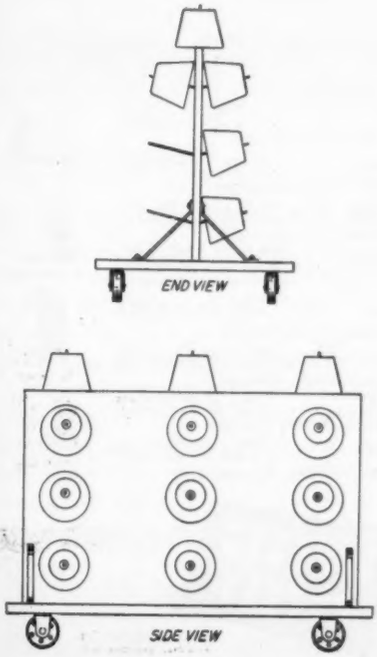
Sometimes a gear has one or two broken teeth and it is possible to make a quick, lasting repair without the need of taking it off and replacing it with a new gear. A repair that will keep a gear in service and have the machine running within a short time is shown in the accompanying illustration.

If a tooth is partly broken off or shows raw edges, the remaining metal can be chipped off with a small chisel. Holes can be drilled in the gear rim by using a suitable power drill. These holes are then tapped to take a stud bolt that has been previously shaped to the contour of the gear teeth, and after the studs are turned in to the desired depth, the metal is brazed between teeth and to the gear's rim, thus making a permanent job.

CONTRIBUTOR No. 8045

Yarn Truck Prevents Damage to Cone Yarn

A truck such as the one shown in the sketch is in use at Glenwood Cotton Mills, Easley, S. C. The truck is of wood construction, and is reported to simplify the handling of yarn wound on cones by providing individual hangers to prevent chafing, tangles, and soiling of the yarn.



Production Aids Reduce Costs

A considerable amount of time may be saved when doffing cards by using a truck that will accommodate at least one dozen drawing cans. The empty cans are loaded on the truck and carried to the cards. As a full can is removed from the card, an empty one is lifted off the truck and put in its place; the cans on the truck and those on the cards merely change places. This is considered an improvement over sliding cans on the floor or on metal runways. The accompanying sketch shows one type of truck that has been

This is the Age of SPEEDS and LONG DRAFT SPINNING

Ring Travelers of greater stability are necessary. Wentworth Double Duty, Wentworth Gravity and Gravity Express meet these requirements.

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Choose the Dinkler Hotel in these 8 great Southern cities . . . and be sure of the finest in service, accommodations and good food!

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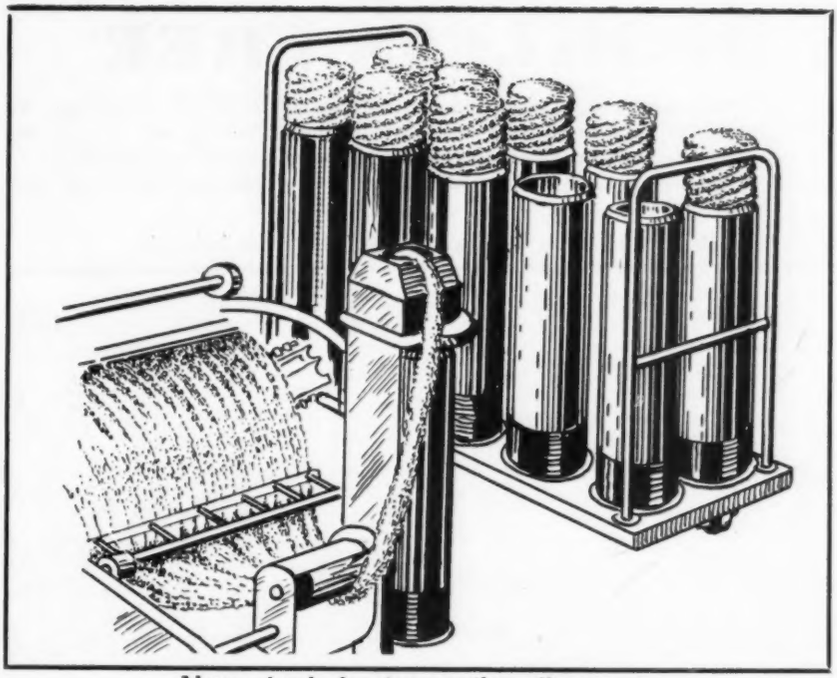


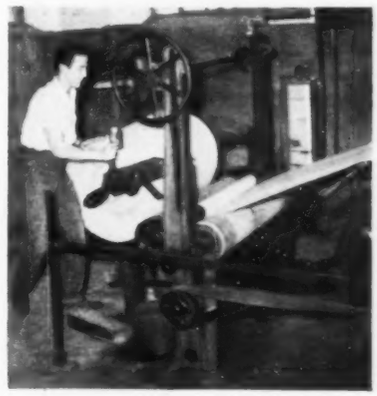
Above, truck for transporting sliver cans.

Below, system for conveying dyed raw stock to bale presses.

used satisfactorily.

Much time and effort may be saved in removing dyed raw cotton from the machines by using a suction conveyor pipe. An enclosed trough is constructed in front of the raw stock dyeing machine and a vacuum pipe (see illustration) is connected to the bale press section and carries the cotton from the trough. This keeps the dyed raw cotton cleaner and eliminates the trucking system between dyeing machines and bale presses.

Production may be saved on continuous process machines by doffing the cloth winder while it is running. An extra roll is kept in a rack on the machine and the roll to be doffed is shifted forward a few minutes before the correct size is attained. A blade, operated by a foot pedal, cuts the cloth as the marker comes in sight, and the operative drops the extra roll in place by use of a handwheel. This idea is in effect on some tentering machines, but it has possibilities of application to continuous bleaching and dyeing processes. (See illustration.)



Doffing cloth "on the run."

Production aids furnished through courtesy of Wennonah Cotton Mills, Lexington, N. C.

Question to Editor

EDITOR TEXTILE INDUSTRIES:

We should appreciate some information on how to prevent start-up marks on filament rayon goods.

CONTRIBUTOR No. 8104

$100 for Best Kink or Short Cut

(Ends August 10, 1948)

ONE HUNDRED dollars will be awarded the contributor who furnishes the most helpful short cut, kink, time-saving device, cost-cutting suggestion, or quality improvement idea by August 10. The contest may be entered by any reader of this magazine, but the kink must not have been published elsewhere.

In sending in ideas, give complete description and where possible accompany description by sketch. Finished drawings are unnecessary. Participants are not restricted as to number of kinks submitted for consideration.

Only one award will be made, but non-winning contributions will be paid for at regular rates if used. Advise in original correspondence if participant's name may be used, or if contributor number is preferred.

All entries must be postmarked not later than midnight of August 10, 1948. Address: Editor "Textile Industries," Grant Building, Atlanta, Georgia.

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Here is the "cream of the crop" of literature on textile subjects as prepared by TEXTILE INDUSTRIES advertisers to aid in mill operation and management. These reference books and catalogs are free for the asking and there is no obligation involved. Read through the list carefully for booklet on the subject or equipment in which you are interested. Then fill in the numbers of those desired on the detachable postage paid card on the following page and mail it to TEXTILE INDUSTRIES.

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GENERAL ECONOMIC, MANAGEMENT . . .

4. HOW FACTORING CAN INCREASE PROFITS—Describes how factoring works out in keeping clients' capital liquid and attitude of factor toward checking credits, including typical balance sheet.—COMMERCIAL FACTORS CORP., New York City.

5. FACTORING AND FINANCING — Illustrated booklet on how factoring works, cost and credit information.—TEXTILE BANKING COMPANY, New York, N. Y.

7. RAYON TELLS ITS STORY TO THE PUBLIC—Folder containing reprints of advertisements explaining some of the many roles in which rayon is serving the American public.—AMERICAN VISCOSE CORPORATION, New York 1, N. Y.

9. TESTING IN MODERN INDUSTRY — This booklet includes many useful tables, conversion factors, equivalent yarn sizes and other information helpful in textile mills. Also describes specialized testing service. Available free to mill men on request.—UNITED STATES TESTING CO., Hoboken, New Jersey.

10. "LABOR AND MANAGEMENT BENEFIT BY INDUSTRIAL ENGINEERING PRINCIPLES" — 8-page illustrated folder outlining principles of industrial engineering as they apply to textiles.—AMERICAN ASSOCIATED CONSULTANTS, INC., New York, N. Y.

11. FLETCHER JUNIOR "SUPER-SELF-BALANCING" EXTRACTOR—Illustrated folder describing this new extractor with the highly efficient self-balancing arrangement which uses steel springs instead of rubber buffers.—FLETCHER WORKS, INC., Philadelphia, Pa.

PLANT AND PLANT MAINTENANCE . . .

102. "TANK TALK"—Sixteen page booklet of illustrations showing various types of elevated steel tanks constructed and erected by manufacturers as well as stand pipes, reservoirs, storage and high pressure vessels, cylinders, along with helpful technical data. Also a list of what a few of the cotton mills, etc., said.—R. D. COLE MANUFACTURING COMPANY, Newnan, Ga.

107. FINNELL SCRUBBERS — Illustrated leaflets describing and giving specifications for the new Finnell floor scrubbing machines.—FINNELL SYSTEM, INC., Elkhart, Ind.

108. RINCO TYPE B HUMIDIFIER HEADS—Bulletin describes new atomizers with construction lessening air consumption. — ALDRICH MACHINE WORKS, Greenwood, S. C.

115. ATOMIZER HUMIDIFIERS—Recent issue of "Parks' Parables" on Turbomatic self-cleaning humidifiers, and automatic regulation. — PARKS-CRAMER CO., Fitchburg, Mass., and Charlotte, N. C.

129. BAHNSON CENTRIFUGAL HUMIDIFIER—Bulletin 327 describes this completely self-contained industrial humidifier which requires only water feed and drain and electrical connection to install.—THE BAHNSON COMPANY, Winston-Salem, N. C.

132. ROOF, WALL AND FLOOR INSULATION—Illustrated booklets on uses of PC Foamglas Insulation and describing its waterproof, fireproof and permanent insulating properties. — PITTSBURGH CORNING CORP., Pittsburgh 22, Pa.

135. SAFETY COLOR CODE—How six standard colors can be used to reduce hazards, cut down accidents.—E. I. DU PONT DE NEMOURS & CO., INC., Finishes Division, C44, Wilmington, Dela.

138. MAGNESIUM IN THE TEXTILE INDUSTRY—Illustrated booklet on properties of magnesium for spinning, twisting, winding, knitting machines, looms, beams, spools, bobbins.—ALUMINUM CO. OF AMERICA, Pittsburgh, Pa.

151. INDUSTRIAL BRUSHES—Illustrated Booklet of industrial brushes featuring textile usage on shears, printing machines—also flock, raising and cylinder brushes.—M. W. JENKINS' SONS, INC., Cedar Grove, N. J.

152. AIR CONDITIONING FOR THE TEXTILE INDUSTRY—40-page illustrated book covering air conditioning from humidity control to complete refrigerated conditioning with installations, charts, covering ABC's of cooling textile mills.—CARRIER CORP., Syracuse, N. Y.

155. GLASS BLOCKS—28-p. booklet with illustrations, engineering data, patterns PC glass blocks. —PITTSBURGH CORNING CORP., Pittsburgh 22, Pennsylvania.

159. BAHNSON HUMIDUCT SYSTEM — Bulletin 330 describes this unit system of air conditioning for humidifying, cooling, heating, ventilating, filtering, and dehumidifying in any desired combination. —THE BAHNSON CO., Winston-Salem, N. C.

160. INSTALLING MACHINERY WITHOUT LAG SCREWS OR BOLTS — Booklet describing use of UNISORB pads for anchoring all types of machinery. —THE FELTERS COMPANY, Boston, Mass.

162. MODERN METHODS OF TEXTILE FLOOR MAINTENANCE—Illustrated treatise on the history of floor cleaning in textile plants and a detailed description of new methods for reducing floor cleaning costs, as well as preserving textile mill floors.—G. H. TENNANT COMPANY, Minneapolis 11, Minn.

163. LAWLOR FLOOR MACHINES — Illustrated pamphlet containing specifications and describing All-Purpose Floor Machines.—THE SELIG COMPANY, Atlanta, Ga.

166. OAKITE PLANT MAINTENANCE DIGEST—A 16-page manual describing materials and methods for handling 54 recurring maintenance cleaning and related tasks in factories and mills.—OAKITE PRODUCTS, INC., New York 6, N. Y.

167. DU PONT COOLER CONDITIONING FOR INDUSTRY—Booklet, color used to reduce maintenance costs, increase production, curtail fatigue, improve employee morale. — E. I. DU PONT DE NEMOURS & CO. (Inc.), FINISHES DIVISION, Wilmington, Delaware.

170. WHY IT PAYS TO ANCHOR YOUR MACHINE WITH UNISORB—Illustrated booklet discussing control, of vibration and noise and how UNISORB reduces maintenance costs.—THE FELTERS CO., Boston, Mass.

171. SULLIVAN T8-WG9—Illustrated bulletin describing the Sullivan line of heavy duty air compressors.—SULLIVAN DIVISION, JOY MFG. CO., Pittsburgh, Pa.

172. VENTILATING FANS—Bulletin 3339 gives facts on Buffalo Ventilating Fans. — BUFFALO FORGE CO., Buffalo, N. Y.

175. MOISTURE—Illustrated Folder, "The Yarn Conditioning System for the Textile Industry of Tomorrow."—KEARNY MFG. CO., INC., Kearny, N. J.

176. AUTOMATIC SELF-CLEANING ATOMIZER HUMIDIFIERS—Latest bulletin describing same.—AMERICAN MOISTENING CO., Providence, R. I.

177. DUCTLESS AIR CONDITIONING — Recent bulletin describing same.—AMERICAN MOISTENING COMPANY, Providence, R. I.

179. TOLEDO SCALES — A condensed catalogue which illustrates and describes all of the principal types of weight control equipment used in the textile industry. — TOLEDO SCALE COMPANY, Toledo, Ohio.

180. TANK MAINTENANCE — Illustrated folder describing R. E. McLean's methods of cleaning and painting water tanks and stand pipes. — R. E. McLEAN, Gastonia, N. C.

181. AIR FILTRATION AND DUST CONTROL—24 pages on atmospheric control, including engineering data.—AMERICAN AIR FILTER CO., INC., 275 Central Avenue, Louisville 8, Ky.

183. ELECTROMAGNETS — Folder No. 99 describes and illustrates fire prevention practices for opening and picking by use of high intensity electromagnets and magnetic pulleys.—DINGS MAGNETIC SEPARATOR CO., 509 E. Smith St., Milwaukee 7, Wis.

POWER TRANSMISSION, MOTORS, BELTING, LUBRICATION . . .

211. JOHNSON BRONZE CATALOGUE NO. 460—Shows over 850 sizes of cast bronze bushings, 350 sizes of UNIVERSAL Bronze Bars and over 250 Electric Motor Bearings. — JOHNSON BRONZE COMPANY, New Castle, Penna.

212. GATES TEXTILE ACCESSORIES — Showing the increased efficiency and economy to be secured through the use of Gates cone belts, evener belts, card bands and loom binder cushions.—THE GATES RUBBER COMPANY, Denver, Colo.

216. LEATHER BOOKLET NO. 202 — Attractive book illustrating and describing BONDARON Special Tanned Leather as used in various forms such as Check Straps, Solid Round Leather Belting, Flat Belting.—CHAS. BOND CO., Philadelphia, Pa.

218. BALL BEARINGS ON TEXTILE MACHINERY—Catalog 9 gives advantages of ball bearings, describes types, illustrates each type of textile machinery.—THE FAFNIR BEARING CO., New Britain, Connecticut.

230. ALLSPEED DRIVES — This 6-page folder covers features, advantages, available size of variable speed drives for the textile industry. Also listed are horsepower and torque data, and unit dimensions.—WORTHINGTON PUMP & MACHINERY CORPORATION, Harrison, N. J.

231. V-BELT ENGINEERING DATA BOOK—Over 50 pages of pertinent engineering information including data on selecting a V-belt drive design of special V-belt drives, numerous standard tables, charts and belt and sheaves list prices. — MANHATTAN RUBBER MANUFACTURING DIV. of Raybestos-Manhattan, Inc., Passaic, N. J.

235. JOHNSON LEDALOYL BEARING BRONZE—Illustrated booklet telling the complete story of Johnson Ledaloyl Bronze, the newest development in self-lubricated bronze for textile bearings and bushings.—JOHNSON BRONZE COMPANY, New Castle, Pennsylvania.

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244. TEXACO SPINDURA OILS—Folder on lubrication for all types of spindles, based on actual tests.—TEXAS CO., New York City.

246. CUTTING OPERATING COSTS—Nationwide Illustrated Survey showing how American textile mills cut operating costs with Multiple V-Belt Drives.—GATES RUBBER CO., Denver, Colorado.

251. OILITE BEARINGS AND PARTS—Catalog B-44 describes and illustrates Oilite bearings and parts for all Industries. — AMPLEX DIVISION, Chrysler Corporation, Detroit 31, Mich.

263. NEEDLE ROLLER BEARING—Catalog Engineering and Application Data Edition 32 contains full data on selection of proper Needle Roller Bearings and outlines uses of such in various commodities including textile uses, types, installations, lubrication, etc. — TORRINGTON COMPANY, Torrington, Conn.

264. NEW DEPARTURE SHOP MANUAL—Illustrated catalog showing ball bearing mounting and maintenance practice. Covers storage, cleaning, lubrication, types of bearings.—NEW DEPARTURE DIV., GENERAL MOTORS CORP., Bristol, Conn.

265. INTERCHANGEABLE BALL BEARING FOR REPLACEMENT—Charts showing numbers used by manufacturers to identify bearing characteristics, also information on specifications.—NEW DEPARTURE DIV., GENERAL MOTORS CORP., Bristol, Conn.

269. LUBRICATION AND MAINTENANCE OF BALL AND ROLLER BEARINGS—Illustrated bulletin describing efficiencies and economies of NON-FLUID OIL for all types ball and roller bearings.—NEW YORK AND NEW JERSEY LUBRICANT CO., New York, N. Y.

270. MANHATTAN FLEXLASTICS — Illustrated booklet describing how flexlastics are used in the Manhattan and Condor line of belting and mechanical rubber goods.—MANHATTAN RUBBER DIVISION, Passaic, N. J.

271. CARDING, SPINNING AND WEAVING LUBRICATION—Informative bulletin describing advantages of NON-FLUID OIL over ordinary lubricants for the lubrication of carding, spinning and weaving machinery.—NEW YORK AND NEW JERSEY LUBRICANT CO., New York, N. Y.

272. HOUGHTON LUBRICATION CHART — Attractive chart listing lubrication recommendations for all mill departments and various textile machines.—E. F. HOUGHTON AND CO., Philadelphia, Penna.

276. SPEED CONTROL—Bulletin 20B6051G describes Texrope variable speed drives. — ALLIS-CHALMERS MFG. CO., Milwaukee 2, Wis.

277. PRECISION COMPOUND AND CHAIN DRIVE—Folder explaining more profitable operation of roving frames.—PRECISION GEAR AND MACHINE CO., Charlotte, N. C.

278. ROLLER BEARINGS—New 35-page Hyatt handbook, "Guide Lines," is a guide to the proper application of cylindrical roller bearings in machinery and equipment of all types.—HYATT BEARINGS DIV., General Motors Corp., Harrison, N. J.

279. OILITE BULLETIN—Discussion of uses of oil-cushioned, self-lubricating bearings in product design and maintenance is contained in this illustrated bulletin. A wide range of machine parts is offered.—AMPLEX DIV., CHRYSLER CORP., Detroit 31, Mich.

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281. MULTI-V-DRIVES—16-page bulletin on Q-D (quick detachable) heavy sheaves. Descriptive information on design, application, stock sizes, and 75,000 V-Drive combinations available.—WORTHINGTON PUMP AND MACHINERY CORPORATION, Harrison, N. J.

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307. THERMOMETER AND PRESSURE GAUGES—Catalog 6705-R and 6706 give data on both circular and rectangular case pressure type thermometers for indicating, recording and controlling processing operations in textile industry.—BROWN INSTRUMENT COMPANY, Philadelphia, Pennsylvania.

311. PIPING POINTERS—Industrial maintenance book covering installation and handling of piping, valves, fittings. Well illustrated, practical tips. — CRANE CO., Chicago, Ill.

314. MOISTURE CONTENT CONTROL — Bulletin F-1705-1 giving details of features and benefits of moisture equipment control for slashers and textile applications. — BARBER-COLMAN CO., Rockford, Ill.

315. CONTROL INSTRUMENTS FOR TEXTILE PROCESSES—32-page illustrated booklet describing controls for such processes as slashing, dyeing, bleaching, kier boiling, drying, air-conditioning, etc. —BROWN INSTRUMENT CO., Philadelphia, Penna.

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317. POWELL VALVES FOR CORROSION RESISTANCE—20-page booklet which briefly describes and illustrates the very complete line of Powell valves available in a large variety of metals and alloys to handle all corrosive fluids—to help solve flow control problems where corrosion may be encountered.—THE WILLIAM POWELL CO., Cincinnati 22, Ohio.

320. OAKITE POWER PLANT DIGEST—A 20 page manual describing materials and methods for handling 71 cleaning, degreasing, descaling, derusting, paintstripping and related operations encountered in power plants.—OAKITE PRODUCTS, INC., New York 6, N. Y.

321. RED-RAY BURNERS—Bulletin describing use of Red-Ray Burners in preheating and partial drying to increase capacity of frame.—RED-RAY MFG. CO., New York, N. Y.

322. DIAMOND SWING JOINTS—4-page illustrated folder describing the Diamond line of ball, swing and revolving joints for use on any system handling air, gas, steam, oil, or any fluid where reflexible connection is needed. — DIAMOND METAL PRODUCTS CO., St. Louis, Mo.

323. TENTER FRAME DRYER—Illustrated folder describing the features and operating principle of newly designed, high speed tenter frame dryer.—NATIONAL DRYING MACHINERY COMPANY, Philadelphia 33, Pa.

CARDING, SPINNING, WINDING, ETC. . . .

401. LUMMUS DUSTLESS, STEEL, BLENDING FEEDERS—Bulletin describing automatically closing, positively locking door on feeders to prevent overloading, choking. — ALDRICH MACHINE WORKS, Greenwood, S. C.

402. AUTOMATIC CLEANING AND OVERHEAD HANDLING FOR TEXTILE MILLS—24-page bulletin describing the American Monorail Automatic Cleaner for preventing accumulation of lint on spinning, twisting, winding and warping machines. Also for cleaning monitors and card room ceilings.—THE AMERICAN MONORAIL CO., Cleveland, Ohio.

407. CARD GRINDER INFORMATION—Folder on care of card grinders, part replacements, etc.—B. S. ROY & SON CO., Worcester, Mass., and Greenville, South Carolina.

409. ROTO CONER—Bulletin describing Universal rotary traverse winder, known as the Roto Coner, producing open wound cones for knitting and warping; parallel tubes for package dyeing, twisting, and sale yarn.—UNIVERSAL WINDING CO., Providence, Rhode Island.

413. SONOCO PRODUCTS—A 60 page illustrated booklet giving description, specifications and charts of the many Sonoco products, including bobbins, cones, tubes, cork cots, roving cans, spools, rolls, etc.—SONOCO PRODUCTS CO., Hartsville, S. C.

416. THE BRIEF SAGA OF THE RING TRAVELER—An interesting history relative to the ring traveler, which is in reality the basis of the spinning frame, John Thorpe's invention of the ring traveler, the development of the spindle, and the invention of Rabeth's Bolster type spindle are covered.—NATIONAL RING TRAVELER CO., Pawtucket, R. I.

419. TEXTILE APRONS—Illustrated folder showing the steps in manufacture of genuine leather aprons for all types of long draft spinning and card room machinery.—TEXTILE APRON COMPANY, East Point, Ga.

421. AUTOMATIC WINDERS—Folder describing latest winding equipment with full automatic operation. Only one automatic head for up to 100 spindles.—ABBOTT MACHINE CO., Wilton, N. H.

422. MODERN TEXTILE ROLL COVERINGS—Illustrated booklet on roll covering problems with chart on correct usages. Also data on Acotex long draft aprons.—ARMSTRONG CORK CO., Industrial Division, TEXTILE PRODUCTS SEC., Lancaster, Pa.

423. TEXTILE SHEET METAL PRODUCTS—Folder on cylinders, card screens, licker-in screens, repair work. — JENKINS METAL SHOPS, INC., Gastonia, North Carolina.

429. PNEUMATIC ROLL PICKER—Attractive bulletin descriptive of the "Amoskeag" roll picker that removes fly and lint from the top rolls and other drafting elements in spinning and roving frames.—M-B PRODUCTS, Detroit 26, Michigan.

431. HYGROLIT YARN CONDITIONING SYSTEM—General description of conditioning cotton, spun rayon, woolens, worsteds for twist setting, lubrication, moisture retention.—KEARNY MANUFACTURING COMPANY, INC., Kearny, N. J.

432. PRECISION TEXTILE WINDING—Bulletin on Kidde Tension and Density Control for winding rubber cones. — WALTER KIDDE & CO., INC., Belleville, N. J.

433. AUTOMATIC TRAVELING CLEANERS—Recent issue of "Parks' Parables" on automatic cleaners for spinning, warping, twisting.—PARKS-CRAMER CO., Fitchburg, Mass., and Charlotte, N. C.

434. WINDING MACHINES—WORK LOAD CALCULATIONS—Reprints of series on winder operations from labor standpoint.—UNIVERSAL WINDING CO., Providence, R. I.

436. MAINTENANCE INFORMATION FOR YOUR SCOTT TESTER—Booklet containing maintenance data for calibration of Scott Testers, clamps for testers, gear-box lubrication, and recording.—SCOTT TESTERS, INC., Providence, R. I.

437. SPINDLE TAPE LACING EQUIPMENT—Circular No. 54 illustrating and describing the Clipper method of joining spindles tapes.—CLIPPER BELT LACER CO., Grand Rapids 2, Mich.

440. SADDLES—Leaflet showing a few of the over 400 different types of saddles for both conventional and long draft spinning and roving frames.—DIXON LUBRICATING SADDLE CO., Bristol, Rhode Island.

441. SKF BALL BEARING TENSION PULLEY FOR SPINNING FRAMES—Attractive illustrated folder outlining the value of anti-friction bearing Tension Pulleys for all types of spinning frames.—SKF INDUSTRIES, INC., Philadelphia, Pa.

443. COMPARATIVE YARN TABLE—Chart giving woolen number (cut and run system) also cotton worsted and metric system; also, Comparative Rayon Denier Yarn Table.—VICTOR RING TRAVELER CO., Providence, R. I.

444. SOL LUSTRE—Attractive illustrated booklet describing Houghton's soluble softening and conditioning oils for textile fabrics and yarns.—E. F. HOUGHTON AND CO., Philadelphia, Penna.

445. ROLLER BEARING SPINDLES—Illustrated booklet showing various types of Marquette Roller Bearing Spindles. The unique full-floating footstep bearing is pictured in cut-away views, and its advantages are described.—THE MARQUETTE METAL PRODUCTS CO., Cleveland, Ohio.

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510. THE ROMANCE OF PRAIRIE GOLD—Attractive illustrated book which tells the story of corn and the uses of corn products in industry.—CORN PRODUCTS SALES CO., New York, N. Y.

512. BRIGHT SPOT IN THE PRODUCTION PICTURE—Folder on more loom speed through Hunt loom spreaders.—HUNT MACHINE WORKS, INC., Greenville, S. C.

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514. SLASHER HOODS—Pamphlet describing drip-proof slasher hoods for cotton or rayon slashers. Roof or sidewall exhaust.—WOLVERINE EQUIPMENT CO., Cambridge 42, Mass.

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517. LOADING SYSTEM—Bulletin 417, on pneumatic loading system for Saco-Lowell slasher size box squeeze rolls, contains installation photo, features, specifications, and prices.—THE FOXBORO COMPANY, Foxboro, Mass.

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520. PNEUMATIC LOADING SYSTEM—Bulletin 418 contains installation photo, features, specifications and prices for pneumatic loading system for Charles B. Johnson Machine Works slasher squeeze rolls.—THE FOXBORO COMPANY, Foxboro, Mass.

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602. ALUMINUM IN THE CHEMICAL INDUSTRY—Published by Aluminum Company of America. Seventy-eight pages. Text and illustrations covering adaptability of aluminum and aluminum alloys to chemical industry applications and characteristics governing recommended uses. — ALUMINUM COMPANY OF AMERICA, Pittsburgh, Pa.

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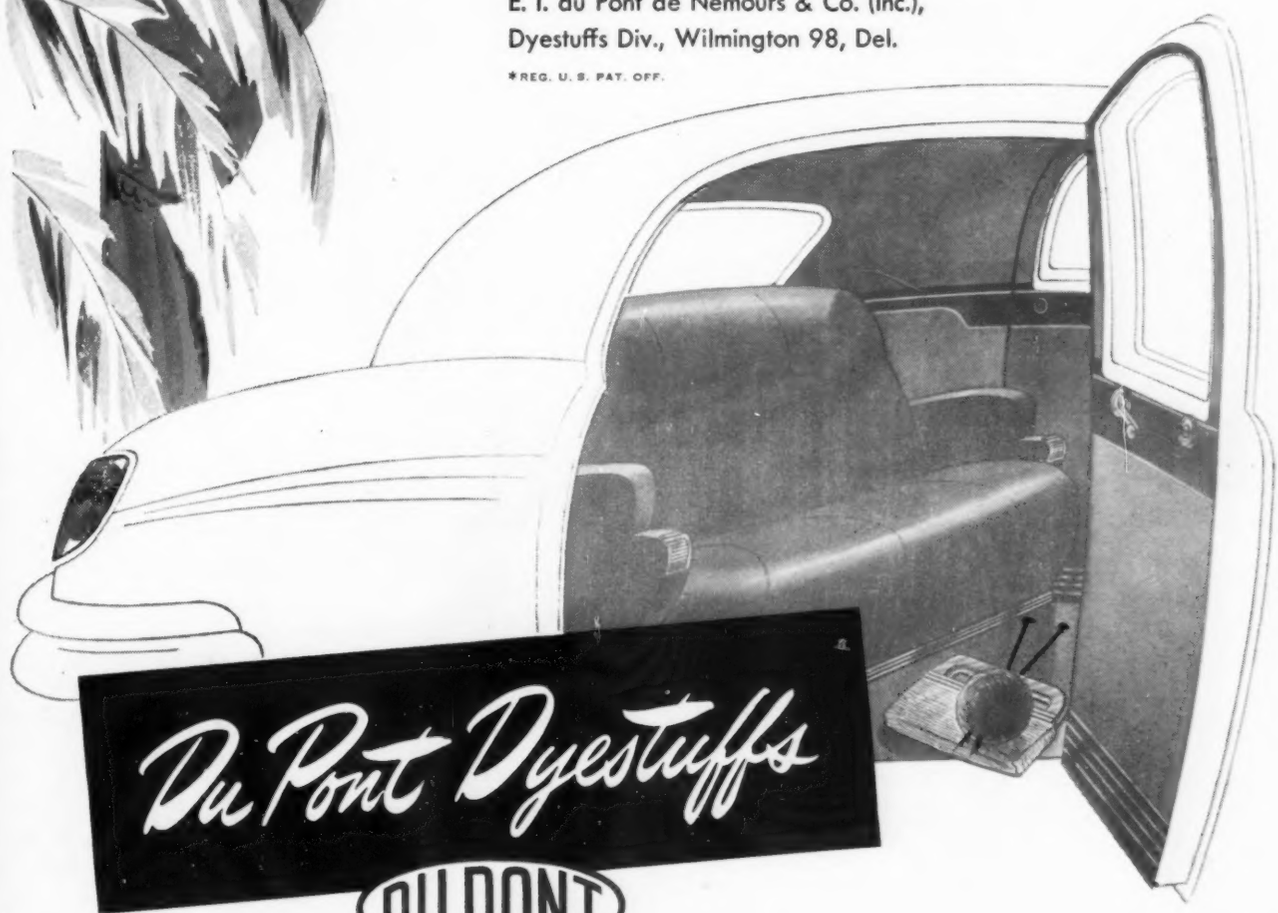

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Stitch Cams in Circular Knitting

Article 1

By TRACY T. TEAGUE

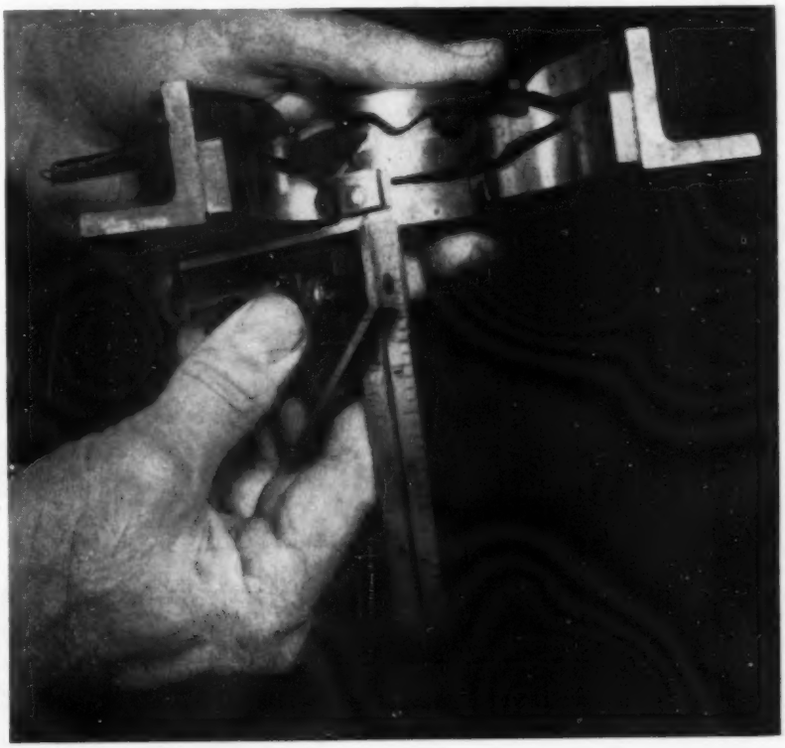
THIS IS the first of two articles presenting many practical suggestions and comments on the theory and application of stitch cams in circular knitting. In this installment the author covers the functions of stitch cams, replacement of cams, adjustments, the selection of cams, adjustable cams, stationary cams, and cam blocks.

STITCH CAMS and their allied parts are said to be among the least understood parts of a knitting machine. This may be easily understood because they are hidden from view, and cannot be seen in operation. Moreover, the stitch cams and side cams operate the needle butts, and they are about 2½ inches away from the point where the yarn is knitted. This separates them from the yarn handling operations which may be seen plainly, and with which operatives are better acquainted.

Many young fixers have the privilege to work on one type of machine only. The machines may be brand new from the factory with a well adjusted set of stitch cams and sinker cams. Under these circumstances there would be few opportunities for the apprentice and young fixer to learn something about stitch cams and stitch formation. It would probably take two or three years for the cams to wear sufficiently to require regrinding, or replacement. However, when the machines began to wear he would gradually learn the importance of the stitch cams and side cams.

If all of the machines were alike there would be only one type of right and left hand stitch cams and side cams to correspond. Different machines have various types of stitch cams and side cams for different kinds of knitting. This factor is important in considering an overall program of adequate training for circular knitting machine fixers.

After serving an apprenticeship on only one type of machine, a fixer is not well acquainted with the functions and operations of the mechanisms on other knitting machines. Therefore, many young apprentices who do not have the opportunity to learn the things they should know about stitch cams, only know that they are either good or bad. If they are bad, a new one is put in. The fixer's



Measuring stitch cams with a trisquare. The square is placed in position and scale is adjusted until it touches the point of the cam before reading the measurement.

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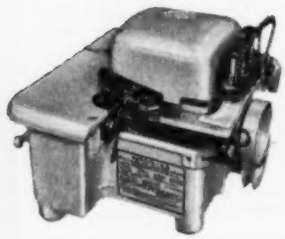

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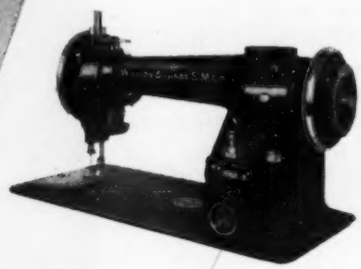

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Automatic Lubrication. For all plain stitching operations.

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knowledge of stitch cams is usually insufficient to determine the corrective measures necessary to prevent trouble and prolong the life of these parts until he has had several years of experience. The length of time it takes to acquire this knowledge depends on whether he starts with new machines, or whether he starts with machines on which the cams are already in bad shape. The latter type instance would require attention much sooner. If the fixer has to maintain a section of machines by himself, the fundamentals of stitch cams and stitch cam adjustments soon become known.

To aid in understanding the fundamentals of modern knitting machines, the plain Scott & Williams B-3s and B-5s, the plain Banner, and the original type of the Standard H machines may serve as examples. The Scott & Williams HHPW's, Standard 80 wrap shog, Banner 19 step, and the Banner wrap reverse argyle machines are a few of the more complex machines in use today.

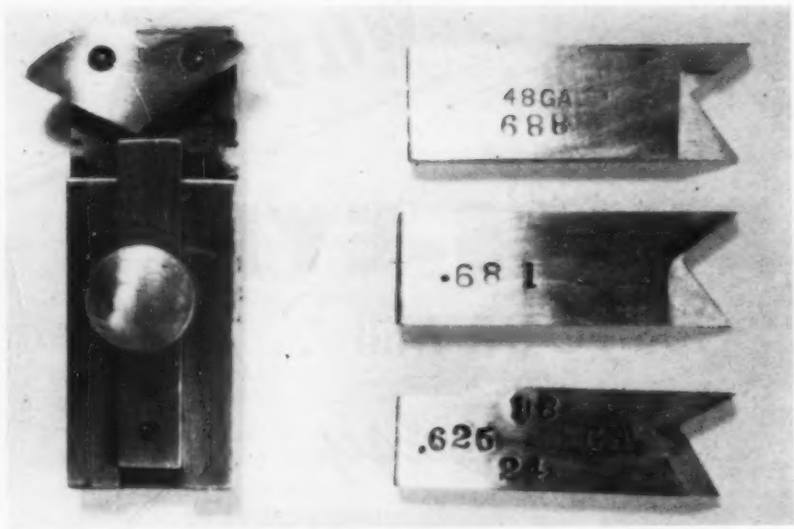

Fig. 1. Cam gauges. Left, Scott & Williams. Right, Banner.

Functions of Stitch Cams. All types of stitch cams have three important functions. The first, and apparently the most important one is the duty of drawing the needles down with the new yarn through the old loops, and thereby forming new stitches. The second one is the duty of raising the needles while approaching the throat plate in order to cast the stitches below the latches. The third one, on the Banner machine, is to form a ledge for the up-picks to rest on. On Scott & Williams and Standard machines, the cams are hollowed out on the top so that the picks rest in the recession while the needle is being guided over the top of the pick lip. These are the three essential functions of all stitch cams.

Stitch cams are divided into two main classifications. One is the adjustable type, and the other the stationary type. The adjustable types, such as those used on Scott & Williams B-3 children's size machines and on all Banner machines, will be dealt with first.

These adjustable cams are made of an oblong piece of steel about 2½ to 3 inches in length. The cam faces are ground on one end of this oblong metal, leaving the remaining part to fasten on a cam block that has a beveled surface, adjustable to the right or left, or forward and rear, as may be necessary. These cam block surfaces are ground to a 45 degree angle. Each of these two types of adjustable cams can be very easily removed from the cam block for inspection, or to polish out any small nicks that might have been worn by the constant pressure of more than 50,000 needles contacting the surface per minute.

Replacing Stitch Cams. The Banner stitch cams may be replaced without taking the cam block off of the machine by doing two or three things. First, set the cam to where the face surface coincides with the surface of the cylinder, but not to touch the cylinder. In other words, set it as close to the cylinder as possible without touching. These cams should be carefully adjusted for correct height of the point of the cams. This is best accomplished by using the Banner stitch cam gauge. The gauge consists of an oblong piece of steel ground to rest under the point of the stitch cam with an overall height of .688-inch for 48 and 54 gauge machines; .681-inch for a 36 gauge machine; and .625-inch for an 18 or 24 gauge machine. (See cam gauges in Fig. 1.) The stitch cams, either front or rear, should be adjusted so that the points come down to the top of the stitch cam gauge on each side. The cams should be adjusted circumferentially to fit the cylinder.

The center cam must be long enough to guide the needles under the points of the stitch cams in the reciprocating motion, with at least 1/16-inch safety to take care of the extra draw when the loose course is being drawn. Otherwise, a needle will hit the top point of the rear stitch cam when going off the toe, causing a broken needle, or knocking the stitch cam out of line. This would require a new adjustment. These Banner stitch cams are fastened on with two 10-32 screws with heavy washers. These screws should be fairly well tightened so as to prevent the stitch cams from being moved out of place.

The B-3 stitch cams are adjusted, and their surfaces are similar to the Banner machine, although the cam surface is shorter and has less, or no hollow ground surface.

The principle advantage of adjustable stitch cams is that one cam can be adjusted with the other for evening up the stitches of the heel and toe. This can be accomplished by determining first the proper height. This is done by using the stitch cam gauge, and then proceeding to lower or raise the other

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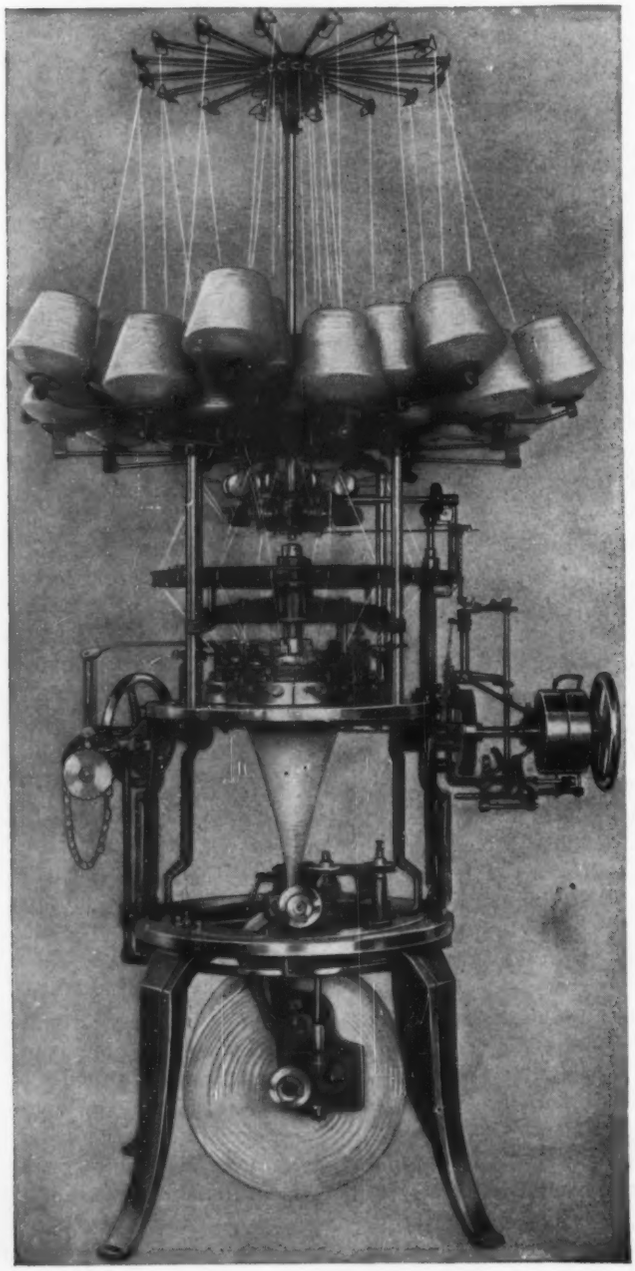

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cam to make a corresponding length of stitch.

Stationary Stitch Cams. The stationary type of stitch cam is used on all Scott & Williams machines, other than the B-3. The Standard H and the Standard 80 also have stationary types of stitch cams. These stationary cams are short, irregular shaped pieces of hardened steel with two 8-32 screws for fastening to the shell shaped cam block for which they are adjusted on the Scott & Williams. Two 6-36 screws are used on the cam slides on the cam blocks of the Standard 80s. The knitting surface of these cams is ground to a 45-degree angle, and both types have the pick recession space on top for the pick rest.

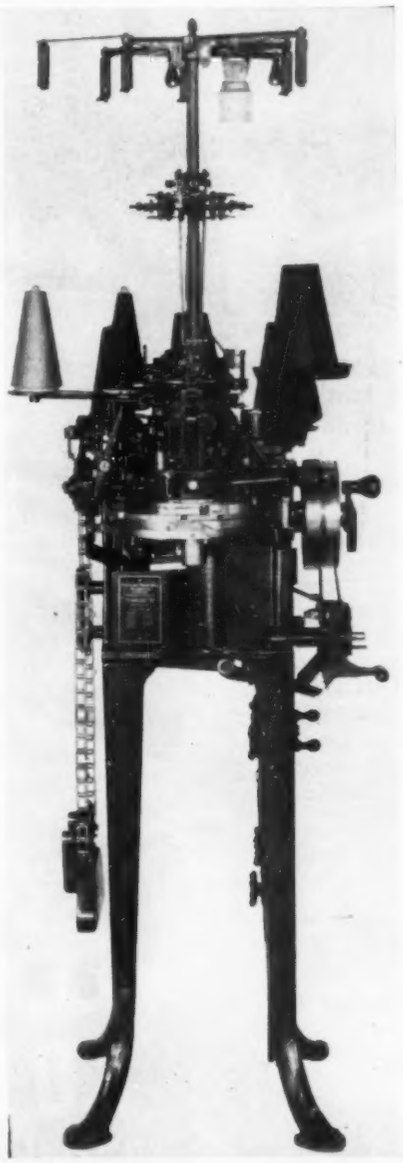
The main benefit of stationary stitch cams is that they can take considerable punishment in a smash-up. Anything that strikes the stitch cam cannot knock it out of line, thereby causing a difference in the reciprocating knitting. This does not hold true with movable cams.

The Standard H and 80, Scott & Williams B-5, and ES, are transfer machines that make it necessary to level the needles when a sock is finished so a new top can be transferred. When these four machines are turned in at a high rate of speed, the cam block comes in on the short butt needles and goes all the way into the cylinder on the long butts without smashing needles, or knocking the stitch cams out of line. This makes it unnecessary to have to readjust stitch cams at frequent intervals. The writer has had B-5s and Standard Hs to turn from 265 to 315 revolutions per minute without any ill effects to the needle butts or the stitch cams. This high rate of speed would not be practical if adjustable stitch cams were used.

The Banner knitting machines (of the transfer type) are always turned in by hand. One revolution of the cylinder completes the operation.

An advantage of stationary stitch cams is that the original adjustment is maintained, regardless of smash-ups or the fact that they are being turned in at a high rate of speed. A disadvantage is that the left-hand cam does approximately 95 per cent of all the knitting. This causes most of the wear to occur at the lower point of the cam, which in time causes an unevenness of the courses in the reciprocating knitting in the heel and toe. This wear can be corrected by grinding the right-hand stitch cam to match the left-hand cam, or by replacing the left-hand stitch cam with a new one.

Adjustable Stitch Cams. Adjustable stitch cams can be adjusted easily for even courses in the reciprocating knitting, and when wear occurs, they can be readjusted quickly. These cams can be knocked out of adjustment by a needle butt or any type of smash-up. It is necessary to turn these machines in at a slow rate of speed after transferring. There is danger of fouling the cams and knocking them out of place which is not true when stationary cams are used.



The standard H knitting machine has stationary stitch cams.

Adjustable cams may be removed and hollow ground to fit various knitting requirements. The machines are turned in slowly, therefore the needles do not give much trouble locking against the walls and hanging up, causing broken needles and moved stitch cams. This additional hollow grinding (which will be discussed later) is of much importance in knitting.

The fitting or adjusting of new stitch cams is much more important than is commonly recognized. In some instances, inexperienced fixers think that the consideration of most importance is that the points of the cams be set at the same depth. To them, that is about all that is necessary. On the other hand, more cautious and experienced fixers know from past experience that each and every type of machine has numerous adjustments to be attended to while fitting cams. These adjustments are different on various types of machines.

For instance, on Banner machines, the cam block is held in a positive relationship to the cylinder by the lower center cam. This cam has a combined surface area of about one square inch, which rests, or rides flat against the cylinder. This cam should be installed first because it acts as a support for the cylinder. The second duty of this cam is to keep the needles from scattering in case of a loose needle or worn center cam. Otherwise, this would permit the needles to pass the throat plate at too low a level, thereby missing the yarn, causing drop stitches, or press-offs.

The lower center cam should be high enough at the top to permit the needle butts to come between the point of the upper center cam and the lower center cam. It should

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be full enough on both right and left sides to leave very little play, for the needles go under each stitch cam. Both right and left main corners should be slightly beveled to prevent scoring or marking of the cylinder while it is in motion.

Choosing Stitch Cams. It is important to select stitch cams suitable to the gauge and needles of the cylinder. These two cams should be examined closely before they are placed on the cam block. The front and back points of each cam should be slightly polished and rounded on a buffing wheel to remove any sharp corners that exist. This is necessary so that should there be a slight movement on either stitch cam, it would not scar or cut trenches in the cylinder walls. This is often overlooked in replacing stitch cams.

The face side on the front stitch cam should be inspected carefully to see that it does not have a sharp edge. The underside of the rear stitch cam should be examined as well. These cams come in on the short butt needles after transferring and are likely to raise or lower short butt needles before the first long butt needle, thereby causing large holes or press-offs. These cams should be very carefully adjusted so that the faces fit the surface of the cylinder as closely as they possibly can without touching or rubbing.

The upper center cam, if it is not already in position, should be the third cam to inspect. The front and rear surface corners should be examined for sharpness and should be slightly rounded so that if it were accidentally moved slightly it would not score or roughen up the cylinder. It is essential that there should be no other sharp edges or rough face surfaces. This cam should be centrally located between the points of the stitch cams. The point of this center cam should be low enough to safely guide the needles under the points of the stitch cams.

Cam Blocks. In a transfer machine, the clamps should be adjusted so that the cam block will slide in and out freely without hanging, but with a minimum of play, both up, down, and sideways.

If the cams are properly finished and adjusted according to these conditions, and they are tightly adjusted to prevent slippage (a constant annoyance on the adjustable cam blocks), a good start has been made toward better knitting on Banner machines.

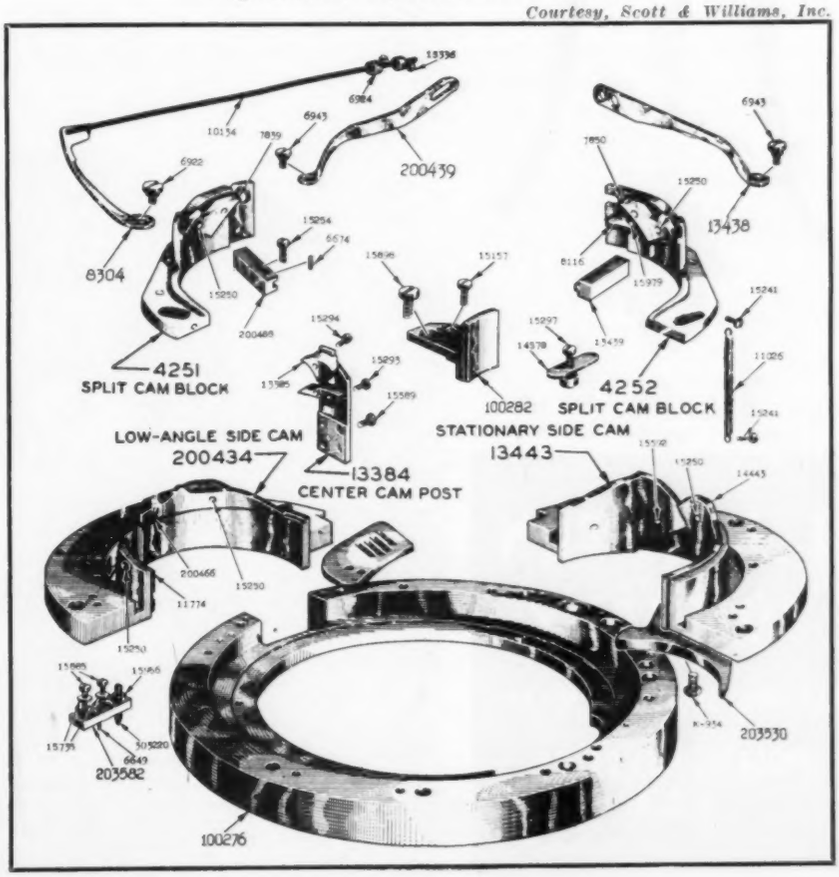
Scott & Williams machines have adjustments which should be performed carefully to obtain best performance. The cam blocks on these machines may be of the solid shell type block, or the split cam block (see Fig. 2). The solid shell is the most durable, though in many instances the use of the split cam block is necessary. The cam block on Scott & Williams machines is so constructed that it rarely rides the cylinder. These cam blocks are milled to rest on the back of the center cam post, and the center cams are adjusted on an individual post provided for the purpose (Fig. 2).

The lower center cam is not used to hold the cam block off of the cylinder, but to prevent loose and stray needles from getting out of control, particularly at the point of the center cam. It also prevents the needle divider, which lowers certain needles for the double sole control, from scattering some needles as it lowers them at the left corner of the throat plate. This lower center cam has a special milled out surface in the left hand corner for the dividing cam action. The upper center cam, which is located directly over the lower one, is not adjustable. It is fastened securely with a screw.

The center cam post should be straightened to enable both center cams to fit snugly against the cylinder without touching. This may be tested by placing a thin piece of paper closely against the cylinder and turning to see if it will go between these cams and the cylinder walls.

The points on these two cams should be polished so that if a stray needle should foul them, the

Fig. 2. Plate 13, Model ES machine.
Courtesy, Scott & Williams, Inc.



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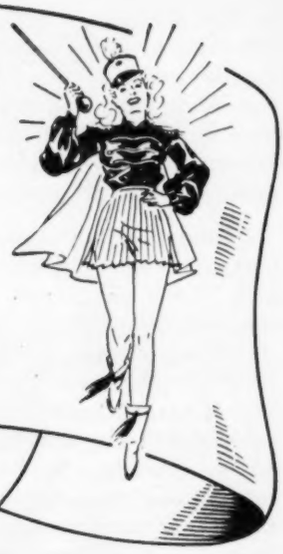

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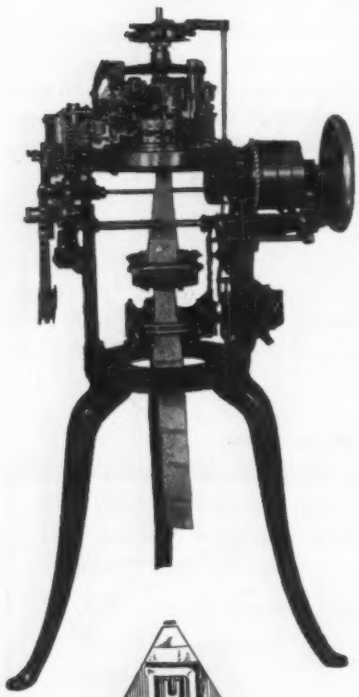

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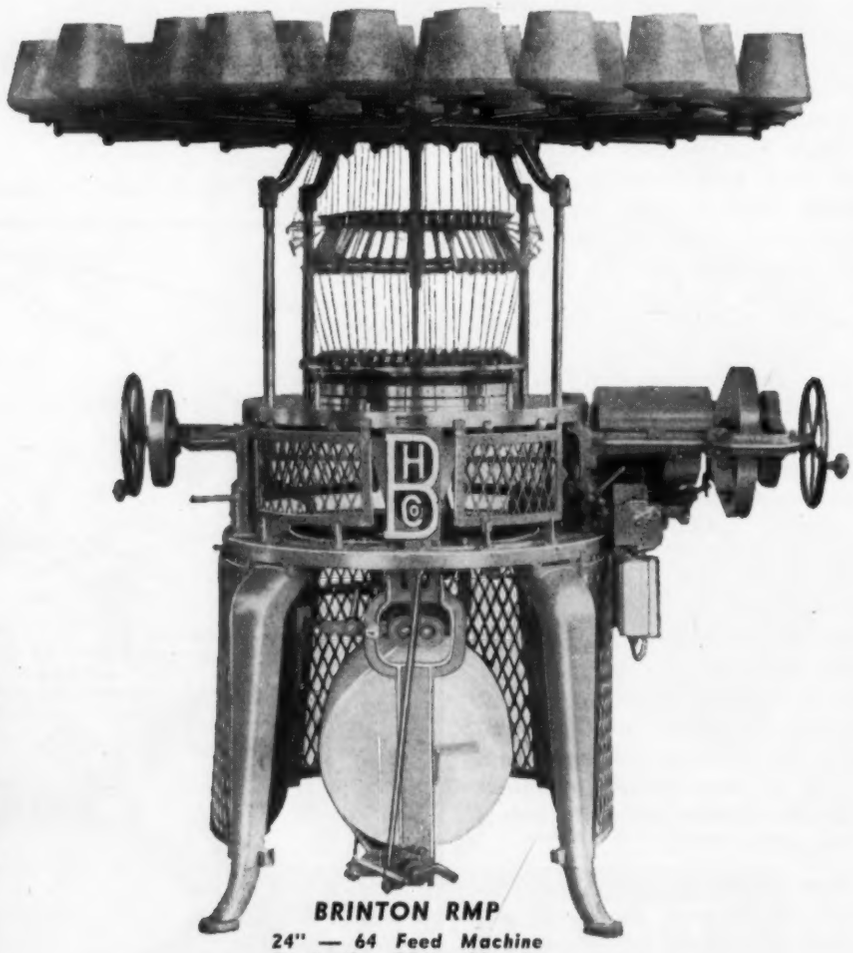

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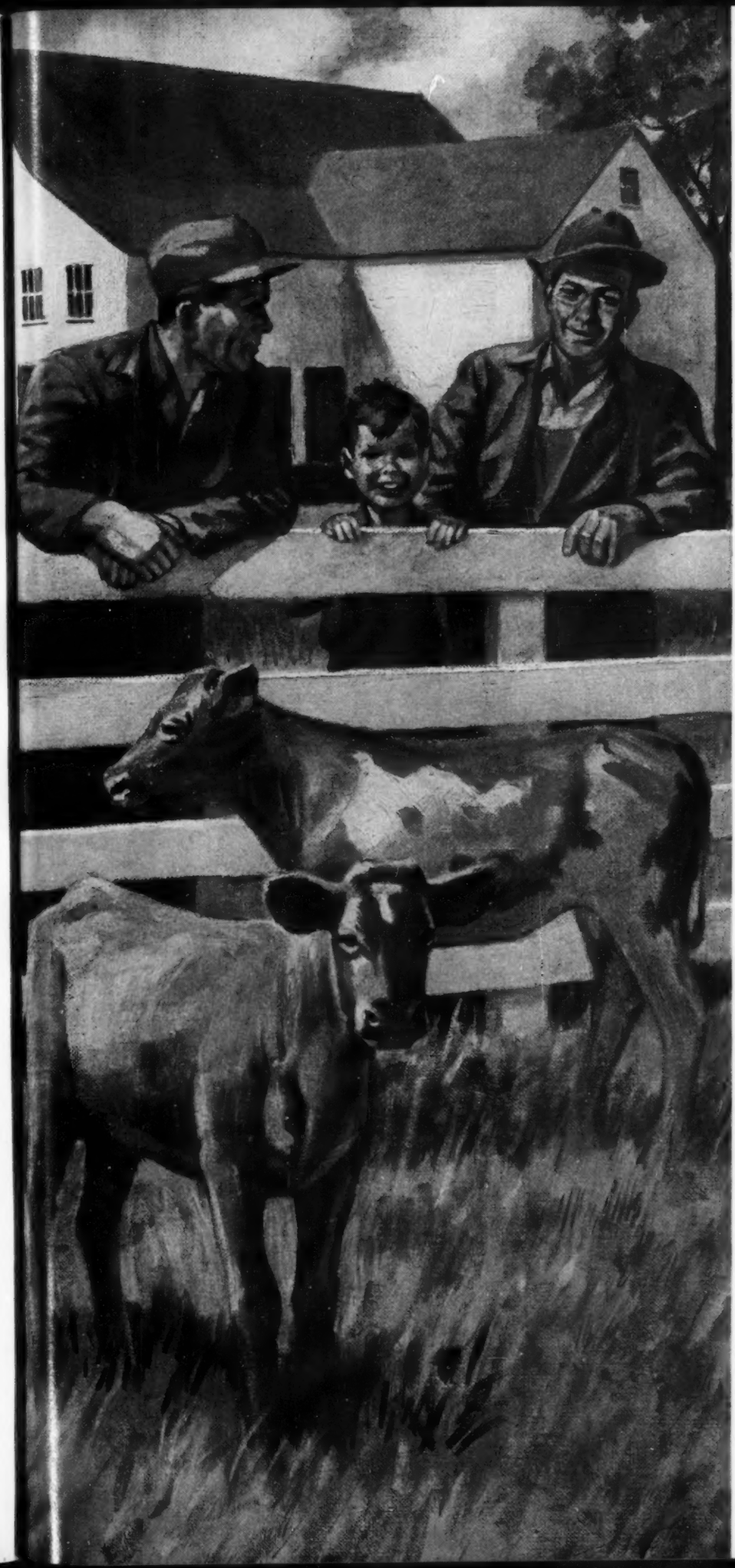

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cylinder would not be scraped or scored. This happens in many instances on improperly adjusted cams; sometimes under the best conditions. It is well worth the time and patience involved to make these adjustments as accurately as possible.

Precautions. The stitch cams should be inspected at the corners for sharpness or roughness, and they should have the same amount of bevel. In addition, a slight bevel should be polished on the top face of the right-hand cam and under the face of the left-hand cam to prevent a sharp corner which would have a tendency to raise and lower needles while the cam block is riding the short butt needles.

The face of the right-hand stitch cam should be beveled and polished on the corner surface ranging from the right-hand corner to the pick recession (Fig. 2, cam No. 7850). The cam block comes in at a high rate of speed and will have a tendency to raise the short butt needles, thereby causing drop stitches and press-offs.

When Scott & Williams stitch cams are installed, particularly on ES machines that have extra short butt needles, it is advisable to see that the 8-32 screws that hold them to the cam block are full length. They should come through to the face of the cam. Otherwise, needle butts will get caught in the screw holes and will be broken off during high speed operation. This is probably best accomplished by getting screws a little bit longer than is necessary. After the cams are properly ground to correspond with each other, these screws may be filed off flush with the face of the cam with a small fine-tooth half round file. This extra precaution will pay dividends when installing stitch cams on any Scott & Williams transfer machine, or those machines on which the right-hand stitch cam is withdrawn from the cylinder during the process of knitting the leg.

Suggestions for Installing Cams. Stitch cams can be more easily installed if the cam block is removed. This allows more accurate measurement of the points of the cams. The depth is measured best by using a small tri-square (shown in Fig. 3). With this instrument placed on the machined portion of the bottom of the cam block, the scale is adjusted until it touches the point of the cam. This can be readily moved from one cam to another to determine which is the longer of the two. In view of the fact that these are not adjustable cams, it becomes necessary to grind the longer cam.

This should be done by grinding on the back side of the cam and never on the face of the cam. The writer has found it advisable to adjust one stitch cam slightly longer than the other one, particularly in cases of the stationary stitch cams. On a Scott & Williams 54 gauge machine, the main cam should be a few thousandths of an inch longer than the right-hand cam to begin with, for this cam does 95 per cent of the knitting and will wear twenty times faster than the right hand cam. The additional allowance will soon wear off. If the main cam is set this way, there will be a longer period of time before there is enough noticeable difference in the courses of the reciprocating knitting to require another cam adjustment. This cam should be only slightly longer than the other one.

Scott & Williams cams are provided with a pick recession on top, and usually do not require any attention at this place. Occasionally it becomes necessary to mill a small amount of extra surface to provide proper space for the picks.

The Scott & Williams center cam is oval shaped on top, permitting the up-picks to release the needle when raising before it enters the line of flight of the inactive high needles. This is a good feature in that it permits the up-picks to stand in their elevated position until after the cylinder has started in the reciprocating move without the pick fouling the short or long butt needles. A foul would occur if the picks had to raise the needles to the full inactive height.

The Standard H and 80 stitch cams are similarly applied, though they require a little more fitting. This is due to the fact that the guard cams and the center cams are more compact than in the Scott & Williams and Banner machines, particularly in the Standard 80.

It is often necessary to grind these cams in two or three places to give needle clearance and pick space, in addition to securing the proper length, or depth. When short butt needles are used, precautions should be observed to prevent square or sharp edges on the cams. The corners and edges should be buffed or polished.

These stitch cams are applied to right and left cam slides, which are withdrawn and let back instead of having to move the cam block. All of the guard cams and center cams rest against the cylinder in their stationary position. These stitch cams are less difficult to install when the entire cam block is taken off. If this is done, it is easier to see and measure the clearances, so that alterations can be made to correspond. Moreover, the depth of the cam can be ascertained in this position, and it is necessary to grind the longer cam to fit the short one. The left-hand cam should be slightly longer to insure a much longer period of satisfactory knitting.

(To be continued)

Stamping Process for Hosiery Identification

Bryan Hosiery Mills of Chattanooga, Tenn., has announced the adopton of a new process of indelible identification stamping as their latest "hosiery service." This is the first time a hosiery manufacturer has used this process, which now makes it easy for the woman consumer to quickly match single stockings, as regards color, weight and brand, according to the announcement.

An indelible stamping machine, developed by Automatix, Inc., of Chattanooga, Tenn., prints the required data on each stocking, and no heat is used. The machine utilizes small detachable wheels which can be changed by the operator in ten seconds when a different identification is used.

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Although rough hands are the primary cause of pulled threads, there are other contributing factors. Equipment which has been carelessly treated, as shown in the photo above, can damage nylon hosiery. When an accident similar to this occurs, the parts should be polished free of burrs and rough places.

The careless operative shown standing in the above photo should not carry the bundle of hose on her shoulder. Damage to nylon hose can be caused by rough seams on the clothes, hairpins, jewelry, etc., and the hose may slip to the floor and be pulled. (Posed photos courtesy of Charles O. Simms.)

Some Don'ts About Nylon

By ERSKINE ROOT

DON'T fret all day because you think your yarn quota is not large enough. Too much time and energy may be spent for no good reason if each day is devoted to worry about something that cannot be helped.

Nylon yarn and fabric may be difficult to handle at times, but on the other hand, you must admit that nylon stockings are first choice on the market. With this thought in mind, take your troubles in stride, and be sure you are doing all that is within your power to help yourself.

The following DON'TS are facts that have been gleaned from experience with nylon, and they should prove of value if appropriate precautions are observed by the mills.

YOU, Mr. Superintendent, are directly responsible, through your foremen, for the handling of the hose. Even if you are the boss, don't mishandle a stocking under any circumstances because everyone else will soon have the idea that it is not very important to prevent those pesky pull threads in spite of all the preaching. Be sure to practice what you preach at all times, for the slightest slip on your part will have disastrous results on your program to prevent pull threads and picks. You should bear in mind that everyone in the plant is watching you, and the fact cannot be over emphasized that as the leader, you must remain one hundred per cent correct when it comes to handling hose with care.

DON'T try to kid yourself with the idea that although you make a mistake now and then you are

Laurel Brand

means better, more efficient, lower cost finishing for your...

cotton | wool | silk | rayon nylon

For over thirty-seven years Laurel has met successfully myriad challenges of leading dyers, bleachers and finishers with better, more efficient processing agents. Ask Laurel Technicians for their recommendations.

Laurel Boil-Off Oils and Compounds · Laurel Emulsions and Softeners · Laurel Hosiery Finishes · Laurel Nylon Finishes · Laurel Rayon Oils · Laurel Textile Oil · Laurel Wool Oils · Laurel Special Finishes

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LAUREL SOAP MANUFACTURING CO., Inc.

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HIGH SPEED OVEREDGING, OVERSEAMING AND HEMMING MACHINES

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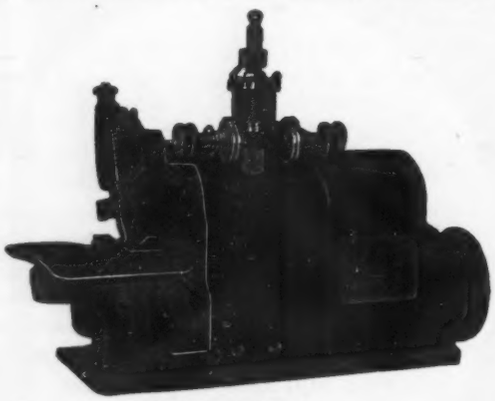
Knitted and Woven Wear of All Kinds



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above reproach. You most certainly are not beyond reproach, and that is where many of us fail—by entertaining the thought that half-way measures will suffice. Too often the superintendent becomes slightly careless and forgetful. When this occurs, it is only reasonable to assume that the operatives themselves will sooner or later get into the same rut. If you set a good example yourself, you can afford to demand more and get better results from the operatives. A superintendent should always be on guard against mishandling hose in the presence of an operative.

DON'T fail to examine the hands of any prospective employee to determine how well his hands are taken care of. This precaution is very important, and it is the first essential step for any mill interested in processing nylon with a minimum amount of waste. If a prospective employee has poorly kept hands, you will find that it is practically impossible to change his personal carelessness. Any person who takes pride in the appearance of his hands usually takes pride in what those hands produce, consequently less picks and pulls are likely.

The largest percentage of second and third degree pull threads is caused by rough hands, and if you do not take proper precautions when hiring personnel, the odds are certainly unfavorable. The battle against pull threads begins in the employment office—a fact that is often overlooked. The prevention of pull threads should be approached from every angle, and no point is too insignificant to consider. Don't make the mistake of thinking that "it's not important enough."

DON'T be too tolerant of operatives who fail to keep their hands in the best condition possible. Too often details are overlooked with the result that there are more pulls and ruined hose than the limited supply of yarn can replace without an undesirable and costly drain on the stock.

Every mill has some rules regarding care of the hands, and it seems apparent that two warnings should be sufficient for the operative who violates these rules. When an operative fails to comply with the mill program, he usually shows an equal disregard for the quality of work he produces. In such instances corrective measures should be undertaken to eliminate the source of picks and pulls that could otherwise be prevented. Sometimes one of the older more experienced operatives may be guilty of carelessness, but if you stop and think—it is not length of service that produces first quality hose with the least amount of trouble. Although it may be difficult to transfer an old employee from his regular job because he mishandles stockings, you cannot get the best results by trying to run a mill on sympathy.

If the operatives are properly coached and shown the correct way to handle the goods, there is no excuse for someone who fails to observe the instructions. Those who fail to heed the instructions are demonstrating a lack of interest in their job. A rough cuticle should have no friends in hosiery manufacturing.

DON'T fail to spot-check all operatives periodically in order to determine who is making pull threads and how. You may know

Spot-check all employees to determine who is making pull threads and how. A careless fixer laid these tools on the stocking in the photo here. Result—pull threads.

Back of every great development in Textiles stands the Bobbin.

A new swim suit captures the fancy of American women and starts a chain of events through the mills across the nation. A call for increased production in the throwing of rayon, Nylon and combination yarns . . . Bobbins subjected to severe tests . . . unusual tension . . . terrific speeds.

To meet such a production schedule problem, Cloverleaf-Freeland develops a new type bobbin so accurately built, and measuring up to such exacting specifications that it passes every production test under every condition and tension.

This is one example of the constant striving at Cloverleaf-Freeland to create better Bobbins.

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Honesdale, Pa. Hazleton, Pa.
Southern Rep.: James T. Gordon, 1013 Woodside Building, Greenville, S. C.
New England Rep.: R. F. Makepeace, 9 Rhode Island Ave., Warwick Neck, R. I.

CLOVERLEAF-Freeland BOBBINS

how many pull threads are showing up in the finished product, but a very important factor is knowing who is making them and how they are being made. The toughest job is to determine where they are being made. It is comparatively easy to eliminate the cause once it has been found.

In the spot-checking process, the lot going through should be inspected after each operation. No operative should be aware that any given lot is a test lot. The foremen should not be informed of the spot-check lots because they are anxious to have their department make a good comparison and they may institute extra precautions. All test lots should be revealed to as few persons as possible so that the test will represent a regular production lot. If an announcement is made that a specific lot will be tested for pulls, and another lot is tested at the same time without any announcement, the results of the inspection will undoubtedly show a significant discrepancy.

It is convincing to an operative when you can show him a record of exactly how many pulls were made during his operation, and the operative should be willing to help determine how the pulls were made so the cause can be eliminated. Occasionally a cause for pulls may remain undiscovered for weeks, but if some effort is being put forth continually to determine where the pulls are being made and how, eventually the source will be discovered.

One pull in a five dozen lot may be considered incidental even after several operations, but no pull should be considered incidental. The cause of that one pull may eventually be the cause of dozens of pulls and rejects; therefore, when check lots go down the production line, every pull should be checked as thoroughly as possible.

DON'T kid yourself that it is "good enough," because what is good enough today may develop into a big headache tomorrow if you do not take advantage of every opportunity to improve the product. Opportunities to reduce the number of pull threads are few and far between, so none should be overlooked.

New Supreme Machines

The Supreme Knitting Machine Co., Inc., 105 Johnson Ave., Brooklyn 6, N. Y., has announced the Supreme model SA and SA/ROF machine which is a latch needle, sinker top, jersey and pattern wheel circular knitting machine. This model is an automatic variable striper based on a new concept, according to Supreme. The cam raceway, drum striping feeds and yarn rack are stationary while the cylinder and take-up revolve.

The camming mechanism for changing colors is quiet and concealed, and a simple, short chain will give any type of stripe selection desired. The chain consists of only two type links which count each revolution made by the cylinder and institute changes on all striping feeds. The arrangement of pins and holes in the individual drum on each striping feed predetermines the color to be selected when the drum revolves.

The model SA automatic variable striper is especially adapted for chest blazer stripes. The production record of this model is 24 revolutions per minute, 8 to 10 lbs. of cloth per hour and 4 color variable stripe jersey.

The model SA/ROF, using 3-level, unitary pattern wheels will produce such fancy fabrics as knit and tuck cloth, both with variable stripes. A complete range of unique plaids, and variable striped jersey fabric may be produced on this machine. The plaid fabrics are knit on the "floatless" lay-in principle; the float being laid-in or tied to the back of every other wale. If desired, the stretch of the cloth may be eliminated and the texture then approximates woven cloth.

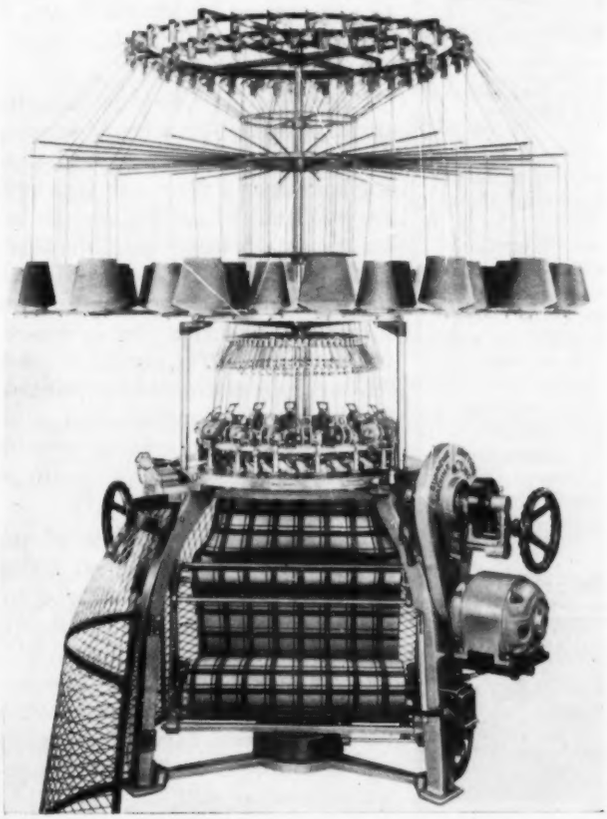
When the model SA/ROF machine is equipped for fancy fabrics, there are 32 feeds with patented knit and welt cams; the feeds are stationary. Four-color drum stripers are provided with automatic controls for single color selection. All 32 feeds can operate with 3-level, unitary pattern wheels, and knit, tuck, and welt needle positions are available on all feeds without changing pattern wheels.

AN EYE ON THE KNITTING MILLS

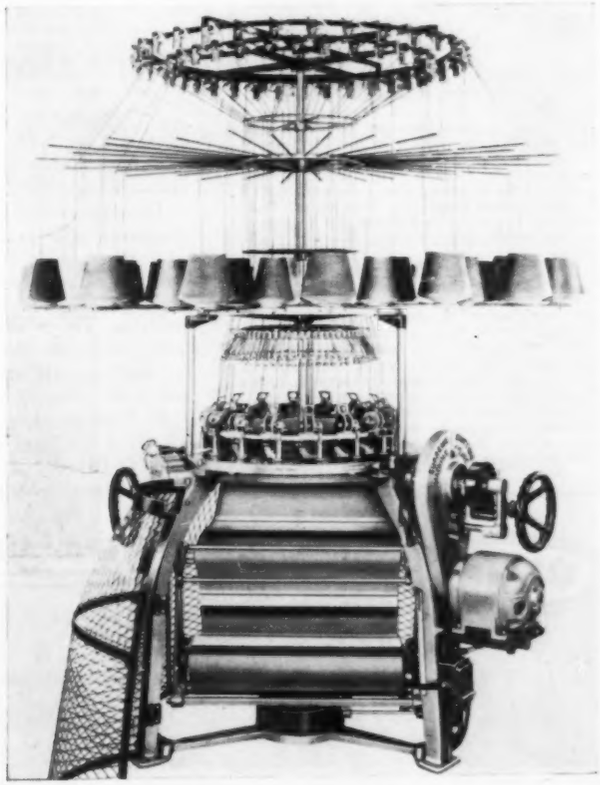
Chalmers Knitting Co., Amsterdam, N. Y., underwear, men's sport shirts, woolen sweaters, etc., has completed an expansion and improvement program at the mill, which represents a reported investment of about $300,000. The work includes a new dyeing unit, providing large increased capacity in that division.

Hans C. Bick, Inc., Reading, Pa., has completed a new power house to provide steam and generate electricity for the company's hosiery finishing plant. The plant has been designed for Diesel and steam electric generation to be installed later.

Kingsboro Silk Mills, Daisy, Tenn., has a specially designed trailer that will materially reduce the inter-plant transportation costs of raw materials



Left, Supreme Model SA/ROF. Right, Model SA.



ONYX IONICS

Newsworthy items for textile technologists and production men

AUGUST, 1948

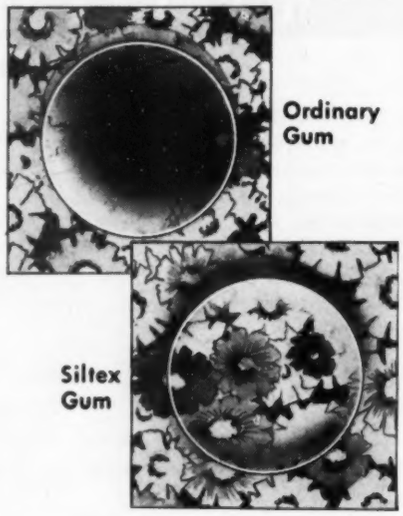
For Crystal Clarity, Sharp Definition, Perfect Penetration, Use Onyx Siltex Gums in Your Printing Operations

Onyx Siltex Gums are still the most effective printing gums on the market. They insure purer whites and clearer colors than any other gums, because they are transparent, colorless, virtually water-white.

Lime-free, Siltex Gums are ideal for any kind of printing. There's no grit to damage rolls or doctor blades. They give you perfect penetration. They mix well with other gums to make smoother pastes. They will not froth during long runs, and do not thin out, retaining their consistencies all the way.

Four parts of Siltex Gum Super Concentrated will do the work of five parts of ordinary gum. Both Siltex Gum Super Concentrated and Siltex Gum Extra Refined are readily adaptable to vat printing. The Siltex Gums have extreme solubility. This solubility makes for better washing and easier mixing, with considerable saving in time and labor.

If you are after whiter whites and clearer, brighter colors, sharply and evenly defined, it will pay you to reinvestigate this superior printing gum.



Compare the darkening and muddying effect of ordinary printing gum on the upper watch crystal with the clarity and transparency of Siltex Gums on the lower crystal.

Onyx Levelol SP Gives You Smoother Running Prints

Onyx Levelol added in small amounts to printing pastes insures greater homogeneity of the paste, reduction of foaming, improved penetration and easier washing out. It has proved to be most satisfactory in providing smoother running prints on both machine and screen applications

NEW DEVELOPMENTS

For Further Details Write Onyx

Low Cost Print Washing with Xynol DD. Xynol DD is a new, inexpensive washing compound developed for washing printed goods. It is used in relatively small amounts for very effective washing. In continuous machines, it is ordinarily used in the next compartment after wetting out. If you are interested in low cost print washing, write for complete data on Xynol DD.

Softening Effects at the Print Wash are easy to get by adding one of the Onyxsans (depending on the hand desired) to the slop wash. A stock solution is prepared, part of which is added to the last compartment in the slop wash. The remaining stock solution is run into the wash either continuously or added after every 5 pieces of goods have been run. This is all the finishing required. The goods are then extracted, dried, framed and calendered as usual.

Whenever You Need a Hard Water Auxiliary don't forget to give Neutronyx 330 a thorough test. This non-ionic surface-active agent with detergent, emulsifying and dispersing properties is compatible with anionic and cationic materials, and disperses insoluble anionic-cationic complexes. If you have a hard water (or electrolyte) problem where an auxiliary detergent is needed, ask us for recommendations on Neutronyx 330.

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Jersey City 2, N. J.

by eliminating wrapping and packaging, as the van is guaranteed dustproof and made of stainless steel, and will enable the mill to move raw materials as they are.

Aristocrat Knitwear Co., Inc., Brooklyn, N. Y., has been chartered with a capital of 100 shares of stock, no par value, to operate a knitting mill for the manufacture of outerwear. A. Jacobs, Brooklyn, is the principal incorporator and representative.

Skyland Hosiery Mills Co., Asheville, N. C., recently organized, has work nearing completion on a one-story mill, and the installation of machinery is expected at an early date. The entire project will represent an investment of approximately $400,000. A. E. Rhash is president.

Outerwear Association Studying Wool yarn Purchasing Procedure

Problems pertaining to the purchasing of wool and worsted yarns on a moisture regain basis and accounting for losses in weight through various stages of processing, are being made the subject of further study by the Technical Committee of the National Knitted Outerwear Association, according to a statement by Morris Philip, of the Philip Knitting Mills, committee chairman.

"Loss suffered by the industry through failure to account properly for yarn 'shrinkage' must, in the course of a year, run into several millions of dollars for the industry as a whole," said Mr. Philip. "That is why this entire subject has come to the forefront of the industry's attention and is receiving more careful study. Knit goods manufacturers are determined that by exchanging information with one another and making a joint study, progress may be made in coping with this problem."

There are two phases of the problem, it was explained. One concerns yarn as it is shipped for the manufacturer's account by the spinner to the dyer, and as it is later shipped by the dyer. The second phase concerns the accounting for yarn losses during processing and manufacture within the knitted outerwear mill.

In knitting fine hosiery—
every detail demands attention

For example, Ankle Tension

PROPER TENSION across ankle and instep is essential in assuring smooth fit and freedom from wrinkles. And this tension can be achieved only by the most careful control of every factor that influences the character and quality of the knitting.

The precision-engineered quality and uniformity of Torrington Needles help you maintain closer control over knitting at this and many other vital steps in the knitting of fine hosiery. Rely on Torringtons for accuracy and dependability in performance.

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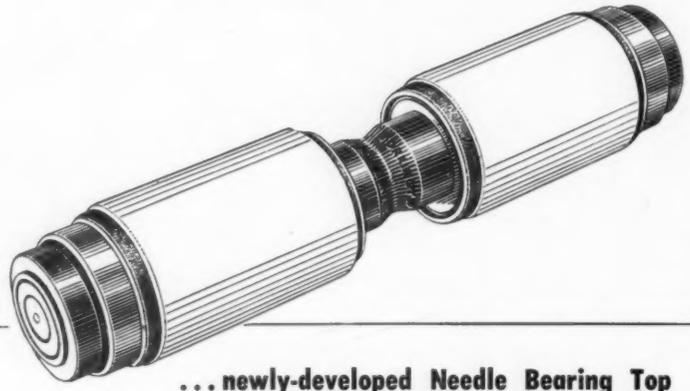
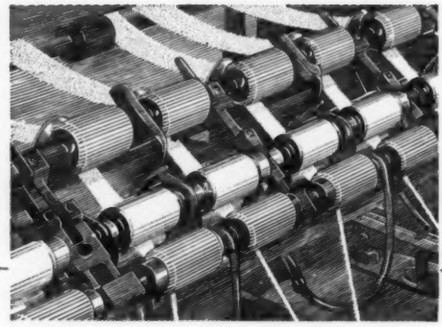
TORRINGTON

SPRING BEARD NEEDLES • SINKERS • DIVIDERS • SPLIT DIVIDERS

Torrington Needle Bearing Top Rolls Help Keep Ends Up . . . Costs Down



. . . newly-developed Needle Bearing Top Rolls improve quality, increase efficiency and result in economy of operation.

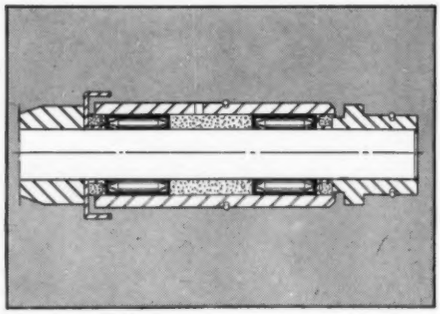


Less time out for piecing-up can be expected as one result of the smooth anti-friction operation of Torrington Middle Top Rolls equipped with Needle Bearings.

NEW TORRINGTON NEEDLE BEARING TOP ROLLS have been adopted as standard equipment in the middle row of the Saco-Lowell Shaw Controlled Draft System for roving and spinning frames.

Among the outstanding advantages of these New Needle Bearing Top Rolls are: longer service life assured by the high radial load capacity of the compact anti-friction Needle Bearings; bearing size permits use of large arbor for freedom from deflection; large oil reservoir insures efficient lubrication for long periods; design prevents oil leakage and accumulation of fly or lint between arbor and shell.

Torrington Needle Bearings lend themselves readily to compact design and easy fabrication and assembly. They have been time-tested in spinning, weaving, finishing, knitting and many other machinery applications. The anti-friction ease of operation reduces power input and produces better quality in the finished material. The specialized experience of Torrington's engineers is offered to help you adapt these low-cost anti-friction bearings to *your* machinery.



Cross-section shows ready adaptability of Needle Bearings to compact design. Use of two precision bearings per boss eliminates "rock," contributing to uniform quality of roving or yarn.

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Novel Sock Construction Features Nylon Reinforcement

An innovation in construction, known as "Ny-Splice," to double the wear of heavy wool and athletic socks, has been announced by John L. Fead and Sons, Port Huron, Michigan.

The Ny-Splice technique consists of knitting nylon thread into the fabric above the heel, in a band covering a one-inch area. This provides effective reinforcement for the high-splice, the point of the sock which bears the brunt of the wear and consequently disintegrates first. Nylon is also knit into the heel and toe for increased wearability.

Another advantage claimed for the construction is that the reinforced band eliminates the stretching tendency of heavy wool socks, assures a snug fit at the ankle and properly positions the sock on the foot. This makes for better appearance as well as greater comfort.

The world's largest hosiery center, Reading, Pa., recently celebrated its two hundredth anniversary. Here, William Morgan, knitter at the Northmont Hosiery Corp., shows Reading's Bicentennial Queen, Marie Henne, how a full-fashioned machine operates.

Stores Are Underbought In Knitted Outerwear

Though spokesmen for knitted outerwear manufacturers express hopefulness for improvement in demand for fall merchandise, it is agreed that the majority of retail distributors right along have continued on the sidelines, and for this a number of reasons are offered. As in other lines, it is said, the merchants are up against consumer resistance as to prices asked, and also as to quality, because at times in the past a considerable part of the goods offered in this category was not only not up to consumers' expectations, but showed definite misrepresentation because of too much manipulation of materials.

Partly because of this, last year the industry had to live through a considerable period of liquidation, partly consisting of loss-clearances of held-over items that had been constructed according to wartime practices. It is now claimed by manufacturers' spokesmen that prices for next fall and winter are not within their control, but quality mostly can be guaranteed to be fit to meet any reasonable standards.

Yarn buying among outerwear producers has been extra cautious, partly because what yarn they took in during final weeks of 1947 and first 1948 quarter has sufficed to carry on production until end of June, or beyond. Not only are higher prices asked for outerwear yarns, including various types of woolen, worsted, cotton and synthetic, but thread and trimming are up. Therefore, to adequately replace supplies purchased months back, but steadily used up over the past three months, the manufacturers either must purchase on a short-term basis (somewhat increasing their costs) or add to their working capital by borrowing from the banks.

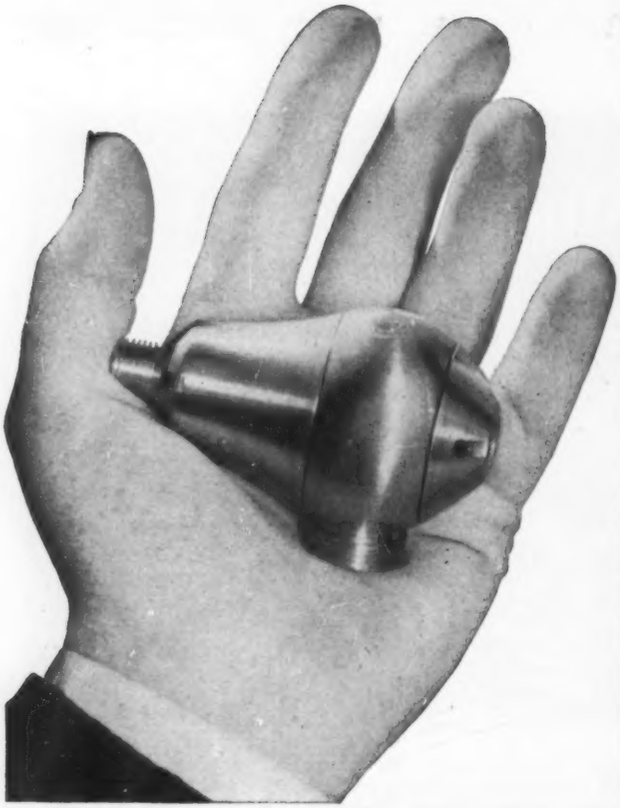
Some producers claim part of the burden should be assumed by the merchandisers taking a fair share of the risks. In other quarters it is contended many stores have definitely returned to their technique of the 1930's—namely, to always buy as late in the season as possible and make the manufacturers carry the inventory.

Work-Capital Strain Annoys Small Units

Many concerns engaged in making and distributing knitted products are said during the six months just ended to have experienced increasing annoyance from too-small working capital, and credit grantors are watching the effect this may have on textile-garment collections in the third quarter.

As of July 1, it is indicated, numerous operators found that when figured on a unit basis, their inventories were not too large, but from the standpoint of values they are out of line with other salient figures in their financial statements, and when they seek bank loans so as to supplement working capital, the lending value of inventory is only around 25 per cent (25%) of the book value.

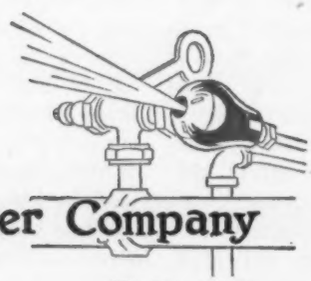
Accordingly it is expected by credit authorities in this field that prior to Labor Day the suppliers of yarns, etc., may receive many requests for extensions.



A Most Profitable Investment

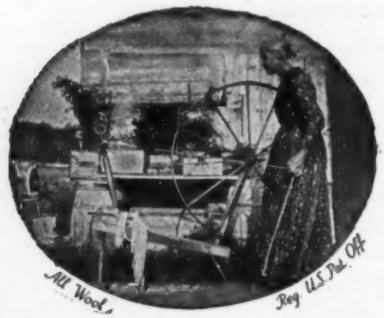
While complete Air Conditioning is ideal in textile operations, adequate and closely regulated direct humidification is yielding extremely high returns for the more modest investment involved.

Best form of direct humidification is the atomizer. For 40 years, representative textile managers have relied on Parks Turbo type atomizers and the conservative engineering practices of



Parks-Cramer Company

Fitchburg, Mass. Charlotte, N. C.



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BARNES TEXTILE ASSOCIATES, Inc.
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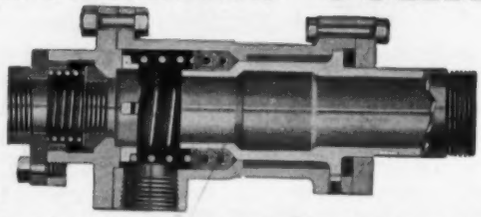
GUARANTEED LEAK-PROOF "DIAMOND"

REVOLVING JOINTS



Permanently end leaking and stuffing box trouble on all kinds of Steam-Heated and Water-Cooled Rolls. No tight packing to act as brake on roll. Patented construction. Specially compounded molded gasket lasts up to 15 months in severest service—easy, quick and inexpensive to replace.

Write for Bulletin and Price List

DIAMOND METAL PRODUCTS CO., 406 Market Street, St. Louis 2, Mo.

NEW EQUIPMENT
AND MATERIALS

Whitin Blending Feeders

Whitin Machine Works, Whitinsville, Mass., is now manufacturing two new blending feeders, Models N2 and N3. These units are constructed from fabricated welded steel. All shafts run in self-aligning ball bearings. Signal lights, dust fan, and sprinkler domes are standard equipment. The bottom apron is inclined and extended aprons are optional.

According to the manufacturer, one of the most noteworthy improvements is the permanently synchronized relative speeds of all moving members. Speeds are controlled by a variable-speed V-belt drive. When a new speed has been set, no further adjustments are necessary to obtain the correct pin apron stripper cylinder and pin cylinder speeds. There are no gears or pulleys which can be changed to upset balanced synchronization. The only two possible changes that can be made affect the size of the tufts of stock delivered and rate of production, it is claimed.

Model N2 is equipped with pin cylinder and is built for blending and feeding baled cotton. Model N3 has a light weight comb which is constructed with aluminum arms and cover; it is designed particularly for blending and feeding synthetic fibers, wool, cotton wastes, and card strips. Production for the N2 on baled cotton is up to 200 pounds per hour. The N3 unit will process up to 200 pounds per hour of synthetic fibers and up to 160 pounds per hour of card strips.

Bancroft Announces "Stazenu" Finish

A new development for the processing of crease-resistant cottons has been perfected and is in commercial production, according to announcement by Joseph Bancroft & Sons Co., Wilmington, Del.

The process, in addition to providing crease-resistance, stabilizes the cloth and makes it sufficiently resilient to give it springiness and hold its natural freshness and well-tailored appearance even in the hot, humid days, it is claimed. It is reported that the process in no way affects the luster, texture or porosity, and there is little or no loss in the strength of the fabric.

The cottons finished under this process in the development of which Monsanto Resloom melamine resins were used, and for which patent applications have been made by Bancroft, are being merchandised under the trade-mark "Stazenu." The process by which "Stazenu" cottons are produced is applied in the final operation and adds little to the ultimate cost. No special finishing equipment is necessary other than curing units.

Other features claimed for "Stazenu" cottons are: laundering and dry cleaning do not affect the durable qualities of the fabric; less cleaning is necessary because the treated fabric resists soil and dirt to a greater degree than normal; there are no cutting or sewing problems; the fabric stays fresh and retains its cotton feel; is not cakey or stiff.

The process is available immediately by Bancroft to their trade, and to the trade of other finishing plants under licensing agreement.

Vacuum cleaner for textile mill use.

Heavy Duty Vacuum Cleaner

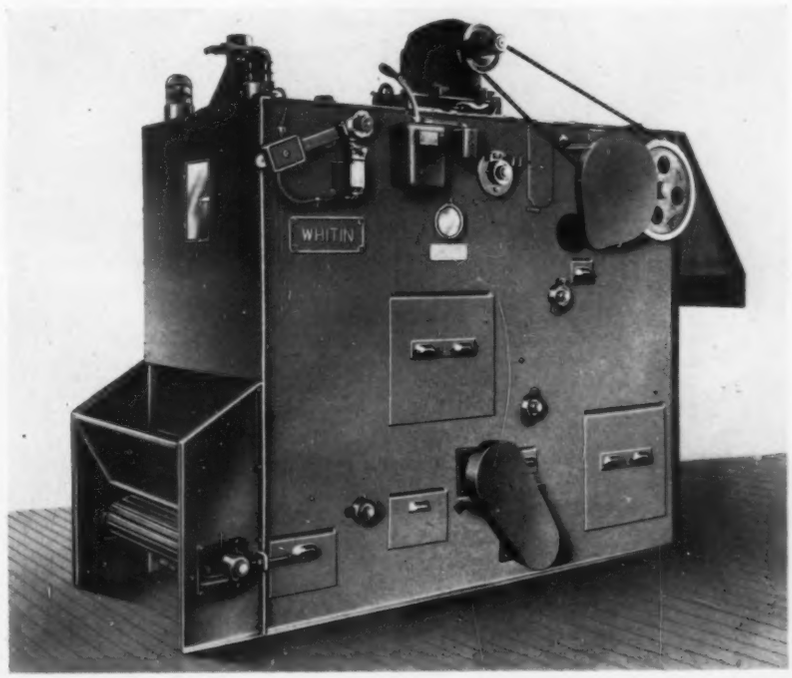
Breuer Electric Manufacturing Co., 5100 N. Ravenswood Ave., Chicago 40, Ill., has announced the development of a heavy duty industrial portable vacuum cleaner designed primarily for use in textile mills.

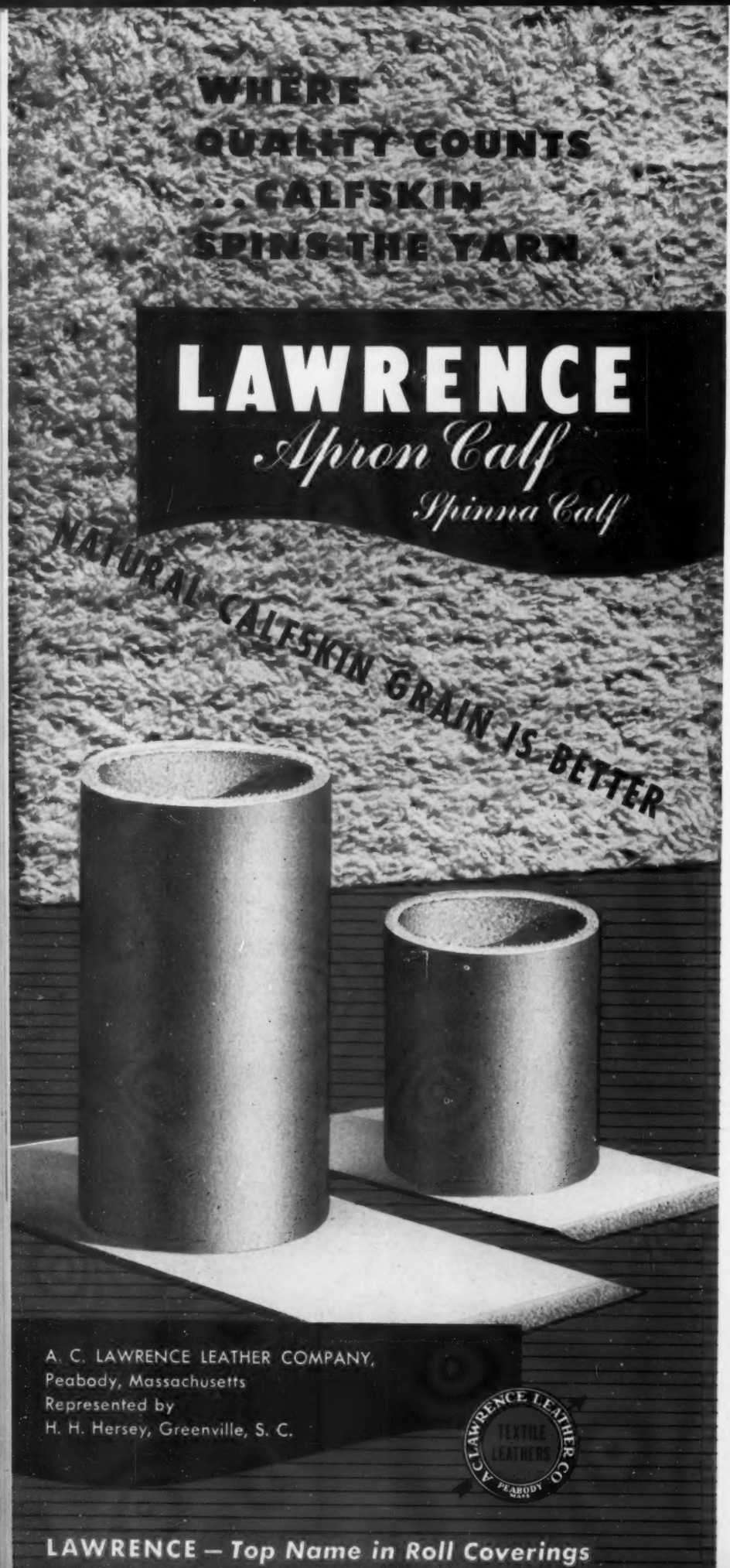
A self-cleaning filter is reported to keep the machine at a high level of operating efficiency and to save time required for cleaning. The tank has a capacity of 60 gallons.

Another exclusive feature claimed for the unit is that it can be instantly converted from suction to blowing, making available a powerful blast of clean air for blowing out parts of machiney which are inaccessible for cleaning by suction.

Two intakes are provided, enabling two operators to work simultaneously with the cleaner. According to the manufacturer, up to 60 feet of hose can be connected to each inlet and an area of 30,000 square feet of bare

Model N2 blending feeder by Whitin for blending and feeding cotton.





floor can be cleaned without moving the machine.

Wet or dry substances can be picked up simultaneously without need of special attachments and without harm to the filter or tank.

This concern has also announced a newly designed floor cleaning machine. Special features include: placing the control handle in proper relation to the revolving brush to counterbalance starting and running torque; brush speed and weight of unit have been designed to increase efficiency of unit; adjustable handle; handle is removable.

Booklet on Community Relations

A booklet entitled "Community Relations" has been prepared for the Cotton Textile Industry-Wide Committee on Public Relations by Dudley, Anderson & Yutzy, 551 Fifth Ave., New York, N. Y.

According to Thomas D. Yutzy who prepared the foreword, the booklet has many authors, principally textile mill executives who speak from long and intimate experiences in winning the friendship of their communities. Actual case histories are cited.

It is recognized that not all the experience is suitable for use by all plants in all communities. However, it is thought that in this exchange of experience, there may be ideas offered which can be adapted to meeting problems of other mills.

The booklet is divided into four parts as follows: Community Relations Are Important; Experiments in Citizenship; Telling the Story; and What Other Industries Are Doing.

5 HP Speed Selector

A new 5 hp model speed control having unlimited ratios has been announced by Speed Selector, Inc., 118 Noble Court, Cleveland 13, Ohio.

This variable speed drive utilizes the principle of planetary motion applied to speed changers in combination with standard V-belts and variable pitch sheaves, making possible infinite ratio, split-second control of speeds from 0 to 800 rpm and into reverse where needed, according to the manufacturer.

The unit is equipped with cast iron sheaves on hardened and ground shafts and guide pins with sealed prelubricated ball bearings, mounted in strong, light cast aluminum housings. Optional V-belt or flexible coupling input and output make the device adaptable for mounting in any position on new or existing equipment.

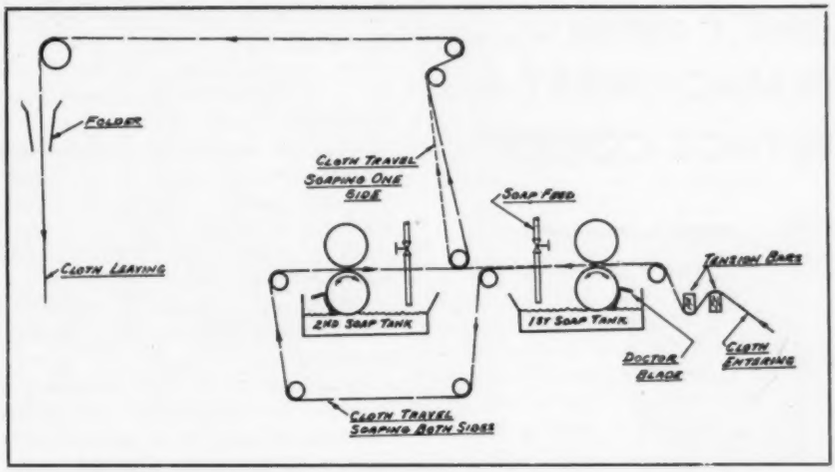


Diagram showing cloth travel through double tub, open width soaping machine recently announced by Riggs and Lombard.

Open Width Soaping Machine

Riggs & Lombard, Inc., Lowell, Massachusetts, have developed a new "Fleet Line" soaping machine.

The soaper may be used for soaping only one side of the cloth, or, by a tandem set-up, for soaping both sides. One of its distinctive features is a doctor blade which may be adjusted to regulate the amount of soap carried to the cloth.

The machine will handle all types of woolen and worsted fabrics at speeds of 20 to 60 ypm depending on conditions and requirements. At present the soap level is maintained manually, but it is expected that installations in the near future will incorporate automatic constant level controls.

Silicon Bronze Fire Extinguishers

American-LaFrance-Foamite Corp. of Elmira, N. Y., has announced a new line of 2½ gallon welded silicon bronze fire extinguishers. They are of the soda-acid, foam, plain water, and anti-freeze water types.

Each of these extinguishers is 4½ pounds lighter than conventional extinguishers made by this concern. It is claimed that the new extinguishers are stronger because material used has higher tensile strength.

Wide-Range Adjustable Sheave

A new wide-range, adjustable-diameter drive has been developed by the American Pulley Co., 4200 Wissahickon Ave., Philadelphia, Pa.

A feature of the sheave is the rubber-lagged hub upon which the sheave flanges are mounted. Bonded to the steel hub of the sheave, the rubber section eliminates freezing by acting as an insulating cushion between the flanges and the hub of the sheave, according to the manufacturer.

Additional advantages claimed for the sheave are: quietness, balance, and ease of adjustment. The sheaves are made in two and three grooves with pitch diameter variation of 5.25 inches to 10.0 inches.

New Vinyl Printing Inks

A complete line of vinyl printing inks has been announced by American Resinous Chemicals Corp., 103 Foster St., Peabody, Mass. The line includes clear vehicles, thinners, light-fast non-cracking pigment concentrates, deluster coats and dye solutions.

All are available for various methods of application, including rotogravure and silk screen printing, as well as hand topping, or spanishing on film or vinyl coated fabric, according to the manufacturer.

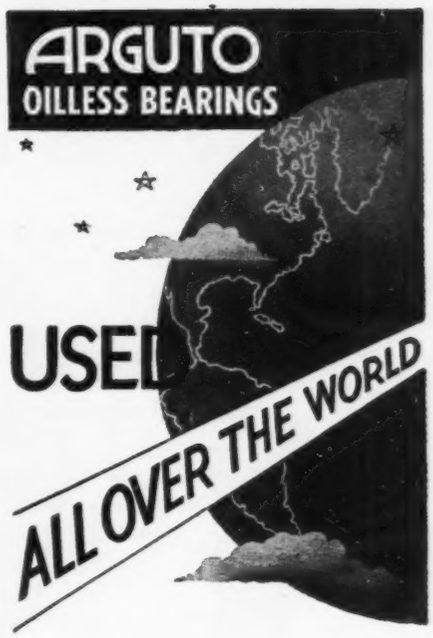
"Ludox" Colloidal Silica Now Available

The Du Pont Company has announced that "Ludox" colloidal silica is now being produced in full-scale commercial quantities.

"Ludox" is said to be effective in weave-setting treatments for rayon fabrics and in other textile applications. In rayon it increases friction between the fibers, thereby improving fabric "stability." It also strengthens yarn, it is claimed.

Aluminum Roofing and Nails

The Reynolds Metals Company of Louisville, Ky., has developed a corrugated aluminum sheet for use as



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roofing and siding on industrial buildings.

The weight is considerably reduced since this .032-inch thick corrugated aluminum sheet weighs only 56 pounds per square (100 square feet). The material, designed for both roofing and siding, is produced with a corrugation depth of ⅞-inch, and a pitch of 2.666 inches. Several sheet sizes are available.

Aluminum nails in six types and sixteen different sizes are now being made by Reynolds.

Aluminum nails carry a number of inherent advantages, it is claimed. They weigh only ⅓ as much as steel nails and are highly resistant to corrosion and stain. In addition, they will not discolor or otherwise mar the attractive appearance of roofs.

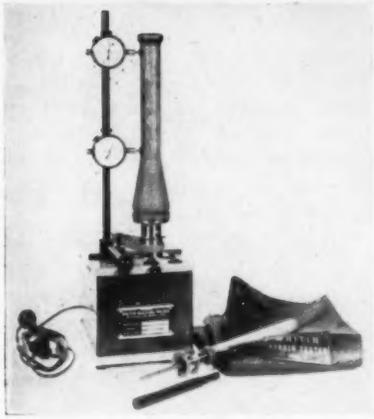
"Communism or Capitalism?"

A 30-page booklet published by the National Foremen's Institute, Inc., Deep River, Conn., entitled "Communism or Capitalism?" explains the difference in the two systems. Examples from everyday life are cited, with each being followed by the questions as to which of the two systems are workable and under which would the operative prefer to labor.

Attachment Supports Hand Trucks

According to an announcement by Melooz Manufacturing Company, 4730 Avalon Boulevard, Los Angeles 11, Cal., the universal tilt truck attachment is a rigid, adjustable support for 2-wheeled hand trucks which allows any standard truck (except aluminum trucks) to be converted into a perfectly balanced 3-wheeled truck which carries the entire load of the article being moved. Through its use, the standard hand truck is transformed into a modern,

Attachment for hand trucks.



Bobbin tester by Whitin

efficient piece of material handling equipment.

A telescoping tube, extending upward from the platform to the top crosspiece of the truck, is adjustable by finger-tip control so that the truck can be tilted and locked at any angle desired. The unique leverage plate extends over the third wheel, bringing the trucker away from, and out from under the load when breaking, preventing injuries. Further, the principle of leverage is utilized to multiply the strength of the trucker, so that one man can handle a load which normally would require 2 men to handle.

High-Capacity Bead-Type Resin for Ion Exchange Processes

A new high-capacity synthetic resin cation exchanger is now offered in bead form by The Resinous Products & Chemical Co., Philadelphia 5, Pa. Its trade name is Amberlite IR-105.

Key advantages claimed for the new resin include: (1) a smooth spherical shape, (2) freedom from odor, taste and color-throw, (3) highly uniform particle size, (4) higher density, (5) rugged physical properties, and (6) high exchange capacity obtained at efficient regeneration levels.

Chemically Inert Paints

A line of chemically inert paints and coating materials is being marketed by Morton Chemical Company, Greensboro, N. C. Good adhesion and heat resistance are chief advantages claimed for the new products.

The complete line includes products for both high and low temperature processing, for maintenance painting in corrosive atmospheres, specially engineered finishes for masonry and concrete, and chemical resistant floor finishes.

Bobbin Tester

To meet the problem of maintaining a check on out-of-round bobbins, Whitin Machine Works, Whitinsville, Mass., has developed a bobbin tester.

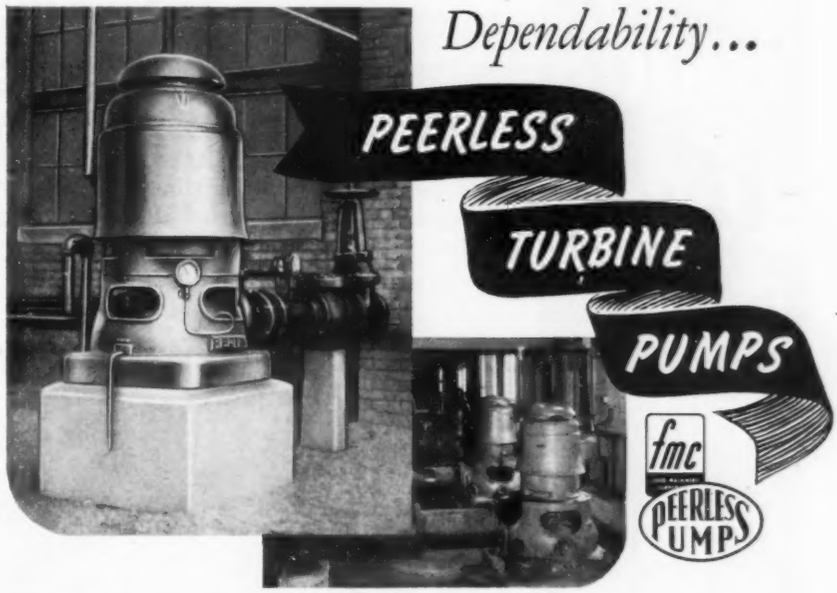
This bobbin tester has a slowly revolving spindle and two mounted indicators calibrated in thousandths of an inch. The spindle is driven by a reduction drive electric motor.

The tester is a completely self-contained unit. It will accommodate all types of bobbins commonly used today and is easily adjusted for any type of bobbin by removing the spindle and bolster from the tester and inserting another spindle and bolster to fit a fresh lot of bobbins to be tested.

Launder-Ometers for Research Testing

The Atlas Electric Devices Co., 361 W. Superior St., Chicago, has an-

The Standard of Deep Well Turbine Pump Dependability...



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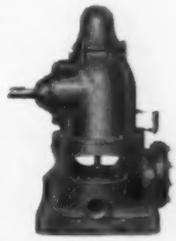

Request descriptive Bulletin B-141-1

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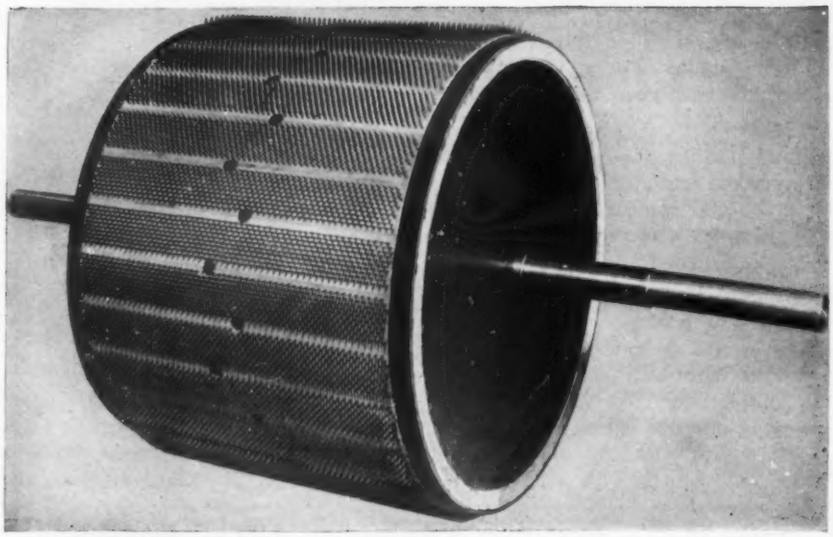

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  made to order
- WARPER SKEWERS
  made to order
- TWISTER SKEWERS
  made to order
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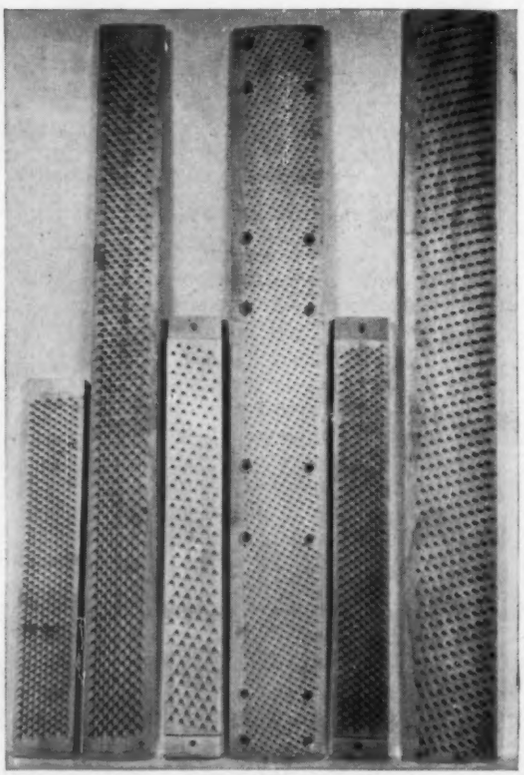
- DOWLING
  from 3/16" to 5/8"
- SARGENT COMBING ATTACHMENT FOR BLENDING FEEDERS



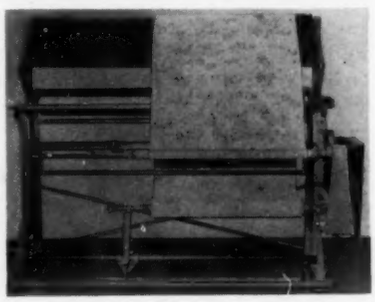
nounced the development of two new Launder-Ometer models. The large capacity of these new machines makes them suitable for laboratory research in testing colorfastness of dyestuffs and launderability of materials.

Model L1Q has a capacity of 20 pint or 20 quart jars; Model L2Q will accommodate 20 pint, 20 quart or 6 half-gallon jars. Both units are available with vari-speed drive unit for operation between 10 and 50 rpm.

Variable Speed Inspecting Machine

A new measuring and inspecting machine featuring foot control for variable speeds is now in production by Cutting Room Appliances Corp., 45 West 25th St., New York 10, N. Y.

The foot control permits the operator to speed up the unrolling action by the mere pressure of his foot from any part of the machine, it is stated. The control consists of a pedal across the entire width of the machine and is worked somewhat like the accelerator on an automobile. The operator "steps on the gas" to increase the speed of the machine, and lets up to decrease speed. This leaves hands free to adjust or handle the material as it is unrolled.



Inspection machine features foot control.

A simplified forward and reverse drive on a single hand control unit gives fingertip control of the machine. An examining board is supplied so that the materials can be examined and a yardage meter which counts off yardage by one eighths is situated for ready reading.

Swing Check Valve

A new type swing check valve designed primarily for the chemical industry, but suitable for other industries that require swing check valves for horizontal or vertical operation, has been announced by the Cooper Alloy Foundry Co., 215 Bloy St., Hillside, N. J.

NEW PUBLICATIONS OF TEXTILE INTEREST

Southern Regional Research Laboratory, U. S. Department of Agriculture, New Orleans 19, La. A report entitled "Trends in the Consumption of Fibers in the United States, 1892-1946," by Robert B. Evans, agricultural economist, and Barkley Meadows, cotton textile analyst. Statistics are given on the basis both of quantities used by mills and quantities used by ultimate consumers.

E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia, Pa. Pamphlet on Cerfak 1300, a new concentrated liquid, non-ionic detergent and wetting agent. Also, a folder which describes this company's lubricants for textile machinery.

Glyco Products Co., Inc., Brooklyn, N. Y. A reprint entitled "Textile Applications of the Glycol Fatty Acid Esters," which describes this new class of surface-active agents, as useful wetting-agents, emulsifiers, softeners and lubricants.

Link-Belt Co., 307 N. Michigan Ave., Chicago 1, Ill. Catalog, Book No. 1815, covering double and triple reduction units with integrally mounted electric motor, in standard size of 1 to 30 hp with an output speed range of 280 to 6 rpm. A tabulation is given of the various sizes of gearmotors available; gives dimensions, and average weights; shows styles of mountings; includes load-classification and selection tables; and gives dimensions of slide rails.

Oakite Products, Inc., 22 Thames St., New York 6, N. Y. Service report which discusses a simplified, economical method of water treatment that provides effective slime and lime-scale control in evaporative condensers and coolers.

Buffalo Forge Co., Buffalo, N. Y. An engineer's handbook on "Fan Engineering," covering air, its movement and distribution in air conditioning, combustion, conveying and other applications employing fans. Priced at $6.00.

Hercules Powder Co., Naval Stores Dept., Wilmington, Del. Booklet entitled "Hercules Pine Oils in the Textile Industry." Also a products book which classifies all of this company's chemicals by family groups. All of the products listed are briefly described as to chemical makeup, uses and potential applications.

E. F. Drew & Co., Inc., 15 East 26th St., New York 10, N. Y. Technical bulletin covering the difficulties encountered in the pumping, storing, and burning of industrial fuel oil, and the application of this company's Ameroid fuel oil treatment and sludge remover for the elimination of these problems.

The Cotton-Textile Institute, 271 Church St., New York 13, N. Y. A directory distributed by the Narrow Fabrics Division of the Institute which lists sources of supply for all types of elastic and non-elastic narrow fabrics; also contains a list of definitions and the rules of the narrow fabrics industry.

The American Monorail Co., 13108 Athens Avenue, Cleveland 7, Ohio. Bulletin CB-3 on "Automatic Cleaning and Overhead Handling for Textile Mills."

Lisbon Hoist & Crane Co., Division of Wright File Co., Lisbon, Ohio. Bulletin on this company's line of "Bob-Cat" electric hoists which are made in three sections, permitting complete and easy access to any part by the removal of four bolts.

The Permutit Co., 330 West 42nd St., New York 18, N. Y. Two bulletins covering Permutit Zeo-Karb water softeners and dealkalizers (Bulletin No. 2418) and Permutit Spaulding precipitators (Bulletin No. 2204).

Ansul Chemical Co., Marinette, Wis. Catalog illustrating and describing the complete line of "Ansul Dry Chemical Fire Extinguishers." Catalog features charts showing the characteristics of approved hand fire extinguishers and the comparative effectiveness of approved extinguishers on flammable liquid fires.

American Structural Products Co., Toledo 1, Ohio. "Daylight in Industrial Buildings," a booklet which outlines the advantages that Insulux glass block offers.

Worthington Pump and Machinery Corp., Harrison, N. J. Bulletin W-305-B1 on centrifugal pumps, types CN and CNE for belt, multi-v-drive and motor drive; Bulletin 1961 on multi-stage steam turbines, type "S" with oil relay governor.

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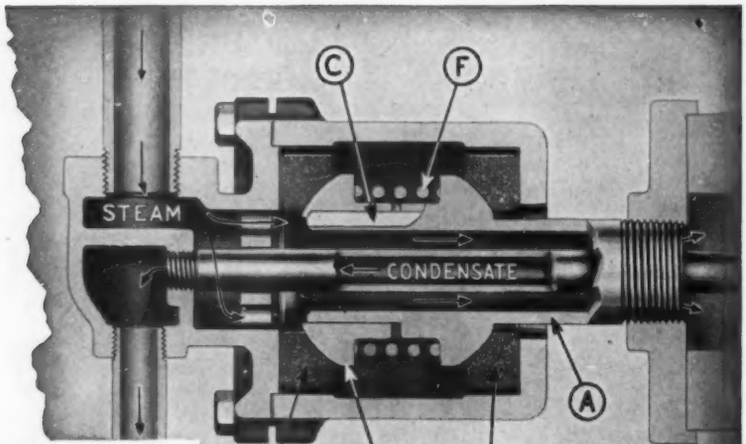


Nipple (A) is connected to roll or drum. Sliding collar (B) is keyed to nipple at (C), but slides loosely over it so pressure can fill entire housing. This pressure becomes the sealing force, by pressing seal ring (D) tightly against nipple. Both seal ring and bearing ring (E) are of special carbon-graphite, which eliminates oiling and packing. Spring (F) is for initial seating only. Type B Joint illustrated; other types, sizes for all needs.

...it's the biggest little trouble-saver in the mill...

In terms of physical size alone, the Johnson Joint could hardly be called big machinery. But in its ability to save time and trouble, and promote plant efficiency, its stature approaches anything the industry has ever seen.

The Johnson Joint was designed to go after the old stuffing box and steam fit troubles in a businesslike way, and it literally knocks the stuffing out of them. There's no packing of any kind. There's no oiling required, ever. There's no adjusting — the higher the pressure, the tighter the seal. There's little to fear from misalignment—with provision for both lateral and angular movement built right in. Note besides how neatly it provides for more efficient syphon drainage, through the same head that admits the steam.

In dollars and cents, what does all this add up to? Well . . . enough at least to pay the cost of switching over to Johnson Joints in just a short while. Enough certainly to make the Johnson Joint too big to overlook.

Write for literature and the name of your nearby Johnson representative.

JOHNSON *Rotary Pressure* JOINTS

THE JOHNSON CORPORATION
815 WOOD STREET
THREE RIVERS, MICH.

Ramie Today

(*Continued from page* 119)

In comparing the appearance and hand of the light weight fabrics made during this study, ramie has shown a more definite resemblance to linen than to cotton. Some of the heavier weight fabrics woven from coarse style yarns, however, take on a worsted appearance. Naturally, the similarity of ramie and linen products should be expected, since both are of the soft fiber class in the bast group.

The tests on the specific yarns and fabrics examined (most of the ramie being made of staple fiber used on the cotton system) showed that the ramie was superior to both the linen and cotton in resistance to flexing and to residual shrinkage during repeated launderings, in tearing strength and bursting strength, and in tensile strength when wet; was superior to the linen in resistance to mildew, and in loss of strength due to laundering; and was superior to the cotton in both dry and wet strength of yarns of three ply or greater. The single yarns of ramie were superior to cotton in dry or wet looping and knotting strength.

The fabrics of ramie that were tested demonstrated excellent resistance to deterioration due to folding and creasing.

The ramie fabric was slightly cooler than the cotton in a coolness test on comparable fabrics.

An interesting fact was brought to light in the property of absorbency in that the textile construction of the yarns and fabrics appeared to be a guiding factor in determining comparative values.

On the basis of a balance of properties reported here, it seems apparent that it is possible to make fabrics from staple ramie that would equal or even out-perform line flax fabrics in general wear resistance, and would compare favorably with linen in appearance and hand. Therefore, based on a careful study of the economics of preparing the fibers, coupled with a consideration of the balance of properties, the writers see ramie as being especially suited for use in high grade specialty fabrics, and see little likelihood of its material-

ly replacing cotton. It appears evident that in special fields which demand a premium in appearance or serviceability, all-ramie fabrics should be attractive and desirable.

The writers wish to express their appreciation to Mr. I. Barnett, until recently of the Georgia Tech Engineering Experiment Station, Mr. J. L. Tucker, and Miss F. L. Hussey of the Johns-Manville Research Center for their assistance in this investigation.

Carding Rayon Staple

(*Continued from page* 90)

flat top card may prove best suited for the job.

The Doffer Comb and Calender Rolls. The usual setting of .012-inch for the doffer comb is generally satisfactory for most rayon stock. However, it is sometimes necessary to raise or lower the position of the comb to regulate the tension on the web. This is sometimes necessary when changing from one blend to another, or from one lot of rayon to another. The calender rolls should be in good shape for properly handling the stock. The smoothness of the fibers makes this very necessary. It is also wise to proceed with caution in putting extra pressure on the calender rolls, because the rayon fibers are much easier to crush than cotton. Some mills have experienced a great deal of trouble from this source. In fact, it is doubtful if the advantage gained from the extra condensing of the sliver is worth the risk involved.

Suggested Settings. In the table on page 90, some suggested settings are given for various deniers and lengths which have worked out very nicely for some mills.

These figures are by no means absolute, but can be used as a starting point, and varied from there to suit conditions in various mills equipped with different types of machines. The processing of staple rayon is always fascinating, not only because of the variety of types, staples, and blends, but because of the problems it frequently poses, and the satisfaction of solving them.

WHAT THE TEXTILE MILLS ARE DOING

Servall Fabrics, Inc., recently organized with a capital of $100,000 by Karl Gatlin, Charlotte, N. C., and associates, plans the operation of a mill in Charlotte for weaving of plastic materials for automobile seat covers, draperies and other services.

Park Yarn Mill Co., Kings Mountain, N. C., fine combed cotton yarns, has plans for a two-story addition, reported to cost over $100,000, with equipment.

Bloom Mills, Inc., Gastonia, N. C., cotton goods, is reported planning for a second mill unit in the locality of Monroe, N. C., Camp Sutton district.

Dover Mill Co., Inc., cotton and rayon specialties, has let contract for a one-story addition to the plant of Ora Mill Co., Shelby, N. C., an affiliated interest. The cost is reported to be about $25,000, exclusive of equipment.

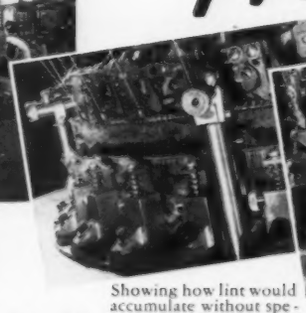
Stanley (N. C.) Mills, Inc., rayon yarn and blends, recently sustained a fire loss when a warehouse at the mill was damaged. The loss is reported to be close to $60,000. Plans are to rebuild.

Asten-Hill Mfg. Co., Philadelphia, Pa., asbestos dryer canvas for paper machines, etc., has plans for a mill addition for large increased capacity.

Acorn Weaving Mills, Inc., has been chartered with a capital of 120 shares of stock, no par value, to operate a mill for the manufacture of rayon fabrics in Cumberland, R. I. Stephen J. Fanning, Valley Falls, R. I., is the principal incorporator.

Cull Silk Mills, Inc., Pawtucket,

Close-up view of Fullergript Brush developed for new Edmos Rib Circular Knitting Machine.



Showing how lint would accumulate without special Fullergript brush.

See how this disc-shaped Fullergript Brush enables needles to work with complete freedom at high speed.

Lint isn't a Problem

New high speed, high feed Edmos Rib Circular Knitting Machine operates four times faster... would produce four times the lint ... but for a special Fullergript brush. Edmos engineers foresaw a lint problem and called in Fuller engineers, who developed a disc-shaped brush that continuously cleans the top of the cylinder, thus prevents lint from accumulating and getting into needles, hooks and latches. Several brushes are built into each Edmos machine. In size and shape this Fullergript brush is unlike most you see on textile machines. The unusual design emphasizes to you the development possibilities on your own equipment of brushes formed with Fullergript strips, where the brush material is anchored in metal channel. Write for special information about Fullergript power brushes for textile machinery.

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Solving sizing problems does not represent to us a simple matter of supplying our products—it calls for expert analysis by men of our staff who are at home in the mills and who speak the language of technical knowledge.

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R. I., rayons, cotton-back satins, etc., has let general contract for a one-story addition.

Colored Worsted Mill has let contract for a one-story steel building in Providence, R. I., to be used for storage and distribution.

Kerriglen Finishing Corp., has been organized in Providence, R. I., with a capital of 600 shares of stock, no par value, to operate a dyeing and finishing mill.

Falls Yarn Mills, Woonsocket, R. I., woolen, cashmere and other yarns, has plans maturing for a four-story addition, estimated to cost over $100,000, with equipment.

Norris Cotton Mills Co., Cateechee, S. C., print cloth, has let contract for installation of an air-conditioning system for the spinning department, including a 200-ton refrigeration plant for service. The cost is to be about $150,000.

Arcade Cotton Mills, Inc., Rock Hill, S. C., carded poplins, etc., has plans for a two-story addition, reported to cost over $150,000, with equipment.

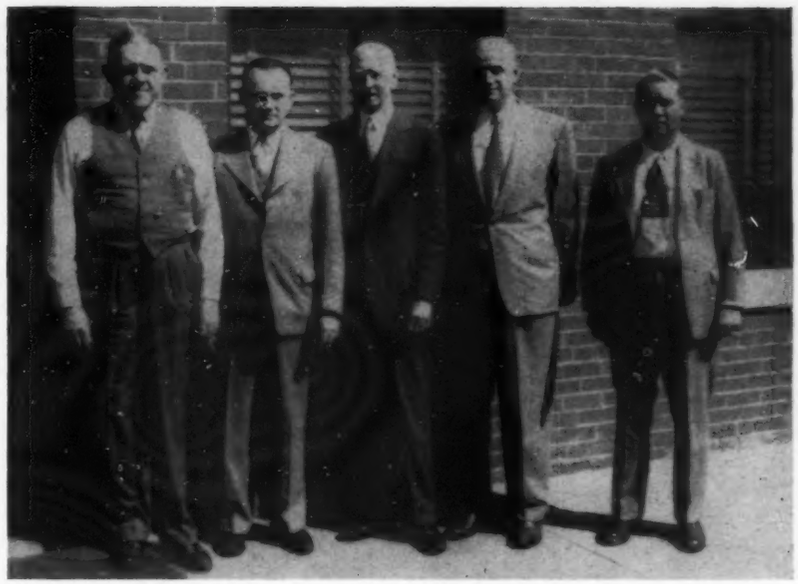
Morrilton Cotton Mills, Little Rock, Ark., capitalized at $1,000,000, have been purchased by Arkansas Cotton Mills, Inc. Plans for rapid conversion and expansion have been announced.

Construction has begun on the plant of the newly organized Brooks Spinning Co. at Newnan, Ga., to manufacture woolen yarn.

Uxbridge Worsted Co. has plans for a worsted yarn mill in Macon, Ga., to be produced on the system of purchasing the worsted top, and putting it through the remaining processes on the cotton system.

Fieldcrest Mills, Spray, N. C., has announced that the manufacture of embroidered bedspreads has been discontinued.

The Johnston group of mills has plans under way for a $5,000,000 modernization program at their 14 plants. Planned for completion in July 1949, the project involves additions to buildings, rearrangement of machinery and purchase of new machinery, and modernization of mill villages. The mills include: Highland Park Mfg. Co., Charlotte, N. C., and Rock Hill, S. C.; Johnston Mfg. Co., Charlotte; Anchor Mills Co., Huntersville, N. C.; Eastern Mfg. Co., Selma, N. C.; Monroe Mills Co. and Union Mills Co., Monroe, N. C.;



Connie Mack, the miracle man of baseball, visited Fieldcrest Mills at Fieldale, Va., recently when his Philadelphia Athletics engaged the Martinsville (Va.) nine in an exhibition game. Shown here at the Towel Mill are, left to right: J. H. Ripple, manager of the Towel Mill; J. M. Rimmer, Jr., personnel manager, Fieldcrest Mills, Fieldale, Va.; Connie Mack; A. H. Ehlers, director of the Athletics' farm system; and A. F. Hooker, Martinsville civic and business leader.

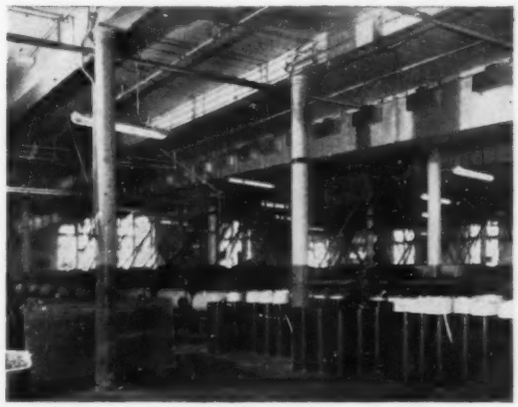
Park Yarn Mills Co., Kings Mountain, N. C.; Worth Spinning Co., Stony Point, N. C.; Spinners Processing Co., Spindale, N. C., and Roberto Mfg. Co. and Brown Mfg. Co., both at Concord, N. C.

Rocky Mount (N. C.) Mills, carded cotton yarns, have received the Liberty Mutual Accident Prevention flag for completing more than one million man-hours without a lost time accident. The mill recorded 1,032,142 accident free man-hours from August 1, 1947 to April 24, 1948.

Construction of a wool processing plant in the New Orleans Foreign Trade Zone to channel the wool output of the two South American countries of Argentina and Uruguay through this port, is now under discussion between Argentine and Uruguayan wool producers and business and port interests of New Orleans.

Tomark Woolens Corp., New York, has been incorporated by Louis Young, Far Rockaway, N. Y., with 100 shares of stock, no par value.

Uniformity of Air — First Requisite for Successful Cooling



There must be proper relative humidity in each department of a textile mill for successful operation. That means the moistened air must be distributed uniformly at all times. There is nothing mysterious about the wide popularity given the Rihco System. It introduces normal outside air into a room in the required quantity to combine with the evaporation of water necessary to maintain ideal conditions of temperature and humidity.

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NEWS in BRIEF

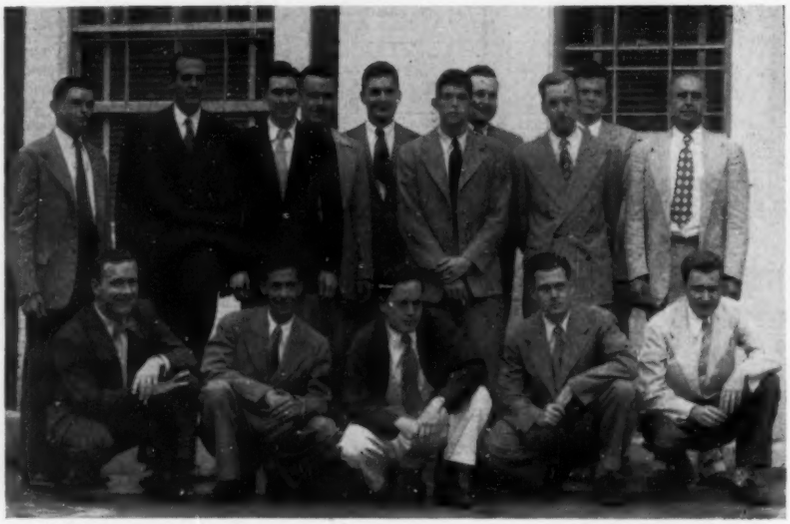
Japanese Fish Net Competition. Japanese competition can be felt in the important fish net field. According to reports, Japanese fish nets are now being offered for sale on the West Coast at prices below the cost of production of domestic manufacturers of the same items. The American netting industry is vital to defense measures. During the war 90 per cent of the production of netting factories went to the armed forces; uses were camouflage nets and parachute cargo nets. Quantities of netting also went to Russia where they were used by the fishing industry.

U. K. Cotton Yarn Production Up. The first week in May saw the United Kingdom break all postwar records in the production of cotton yarn, with a volume of 18,140,000 pounds. Target for the end of 1948 is 20 million pounds weekly. Last year's production averaged 14 million pounds. Exports of textile equipment from Britain are running at the highest since 1930. Present indications are that the British textile machinery makers will be able to meet both home and overseas needs.

New Cotton Promotion Work. Half a million dollars for new cotton promotion work has been appropriated, according to the National Cotton Council. This amount will be added to funds already being used to boost cotton products. Two markets, cotton bags and canvas awnings, will receive especial attention.

New York Textile Show. The Second International Textile Machinery, Equipment & Supplies Exposition is scheduled to be held again in New York City in the spring of 1949, according to Arthur Tarshis, exposition manager. Site for the exposition is the 71st Regiment Armory, and date for the show is March 21-25.

Monsanto Offers Experience to College Faculty. Inauguration of a program which will permit university and college faculty members in chemical engineering to gain a full year's on-the-job experience in the chemical industry has been announced by Monsanto Chemical Company. Motivation for the plan is the need to give younger teachers practical experience in industrial operations, according to



Pictured above are the members of the first class of graduate students at the Institute of Textile Technology, Charlottesville, Va. Having successfully completed the first year of academic work, these students will be employed by member mills during the summer months. Further study at the Institute will lead them to M. S. and Ph. D. degrees.

the company. Monsanto previously announced a program of giving industrial chemists leaves of absence to return to universities for academic study.

International Standardization. Steps to organize the international standardization work on textiles and textile test methods were taken at the meeting of Technical Committee 38 on Textiles of the International Organization for Standardization, held in Buxton, England, the early part of June. The objective of the committee is to coordinate and unify national standards in the field of textiles in order thereby to decrease barriers to international trade in the field. U. S. participation in the work will be through the American Standards Association. The American delegation consisted of D. E. Douty, William D. Appel, H. J. Hall, J. Robert Bonnar, Frederic Bonnet, George S. Buck, Carl M. Conrad, J. B. Goldberg, Vice-Admiral George F. Hussey, Jr., Edward T. Pickard, A. G. Scroggie, and D. L. Worf.

Avondale Promotes Direct to Consumer. Avondale Mills are promoting the sale of piece goods and advertising the name of the organization directly to the consumer through retail stores. A fashion show headed by three Avondale stylists, is held under the auspices of a retailer in various cities. Stylists travel in a specially equipped, company owned bus carrying a public address system, garments, accessories, etc. The retailer makes arrangements for window displays and local radio and newspaper advertising. The store selects, for local interest, six young ladies of the town, who are instructed by the Avondale group in modeling. Usually thirty garments are shown. Wardrobes are constantly being replenished with new garments and new fabric styles.

Textile Profits 1918-47. The Cotton-Textile Institute has just completed a survey of textile profits for the years 1918 to 1947, a period which includes the tag end of World War I, all of World War II, the transition periods of both, and several business cycles. The survey shows that in this period profits on sales before taxes for the textile industry amounted to 4.26 per cent as compared with 7.24 per

Sept. 16-17—Annual meeting of National Association of Cotton Manufacturers, The Marshall House, York Harbor, Maine.

Sept. 17-18—First All-Canadian Textile Seminar, sponsored by Textile Technical Federation of Canada, Queens University, Kingston, Ontario.

Sept. 23-25—Annual convention of National Association of Foremen, Convention Hall, Philadelphia, Pa.

Sept. 24-25—Annual meeting of Southern Hosiery Manufacturers Association, Sheraton Bon Air Hotel, Augusta, Georgia.

Sept. 25—Meeting of Southeastern Section, American Association of Textile Chemists and Colorists, Columbus, Ga.

Sept. 27-Oct. 1—Third National Plastics Exposition, Grand Central Palace, New York, N. Y.

Oct. 4-9—15th Southern Textile Exposition, Textile Hall, Greenville, S. C.

Oct. 14-15—Annual party and golf tournament, Chattanooga Yarn Association, Chattanooga Golf and Country Club, Chattanooga, Tenn.

Oct. 14-15—Annual meeting of North Carolina Cotton Manufacturers Association, Carolina Hotel, Pinehurst, N. C.

Oct. 14-16 — Cotton Mechanization Conference, sponsored by National Cotton Council, Lubbock, Texas.

Oct. 21-23—Annual convention of American Association of Textile Chemists and Colorists, Sheraton Bon Air Hotel, Augusta, Georgia.

Nov. 11—Annual meeting of Cotton-Textile Institute, Plaza Hotel, New York, N. Y.

Dec. 4—Meeting of Southeastern Section, American Association of Textile Chemists and Colorists, Atlanta, Ga.

HOW ANDERSON SHIELDS INCREASE SPINNING ROOM EFFICIENCY

Spinning rooms using Anderson Shields save time and money, and prevent disruption when unnecessary breaking, chipping, and splitting of bobbins and spools is avoided. In a year's time these items alone can amount to a surprising sum . . . Insist on Anderson and get the best protection metal shields afford . . . Watch your spinning room efficiency increase!

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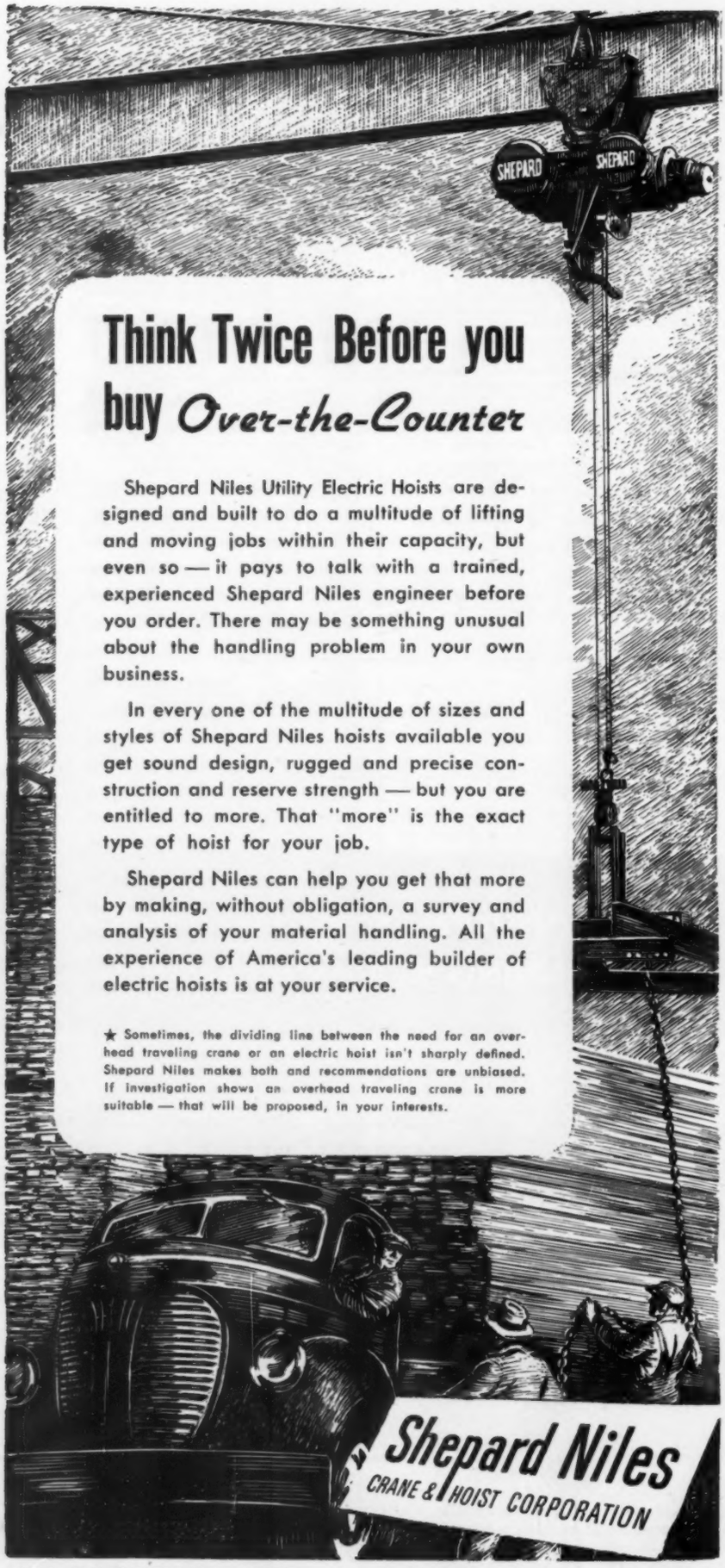

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Shepard Niles Utility Electric Hoists are designed and built to do a multitude of lifting and moving jobs within their capacity, but even so — it pays to talk with a trained, experienced Shepard Niles engineer before you order. There may be something unusual about the handling problem in your own business.

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cent for all other manufacturing industries. Profits after taxes amounted to 2.96 per cent for textiles as against 5.49 per cent for all other manufacturing. Commenting on the textile profit showing, the survey states, "in the current controversy about profits and their relation to prices, the discussion is usually limited to the current year or to comparisons with the so-called base period, 1936-1939. Industries are organized not for one year or even a few years but for permanent operation, and the profits for any one year are but an incident in the life of an industry. The capital which an industry generates or attracts, both of which influences its technological progress and, therefore, the nation's standard of living, is determined by the amount of profits over a long period.

Asphalt Coated Bale Ties Present Serious Problem

Use of an asphalt coating on steel ties used in baling cotton has resulted in some spinners losing up to $40 a bale, a loss which will be shared by the entire cotton industry if not solved through cooperative action, according to the National Cotton Council.

The Council has made the following preliminary recommendations:

1. That manufacturers of cotton bale ties discontinue coating ties until a suitable coating material can be provided;
2. That cotton spinners refuse to sell coated ties for re-use as bale ties;
3. That intensive efforts be undertaken to find a solvent which will effectively and economically remove paint from coated ties now in trade channels, and that oil mills, compresses and gins be urged to have the paint or coating removed before using ties;
4. That an intensive educational and informational campaign be initiated throughout the industry immediately.

The Council reported that the major producer of cotton bale ties has discontinued the coating process and another manufacturer is considering similar steps.

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Point of Contact

2 POINTS OF SUPERIORITY in the SONOCO BOBBIN

STRAIGHT SIDE WARP SPINNING

1 The spindle top fits the "cushion grip" with a gentle squeeze to make top-drive contact, which breaks sharp and easy without drag or pull in doffing.

Uniform tension can only be obtained through top drive —the SONOCO Straight Side Bobbin cannot make contact with spindle except at top. Positive contact at top and positive clearance at base also means uniformly easy doffing.

2 A straight side bobbin and a straight side spindle acorn means constant uniform clearance at this point, which is essential in maintaining top suspension drive.

Point of Clearance

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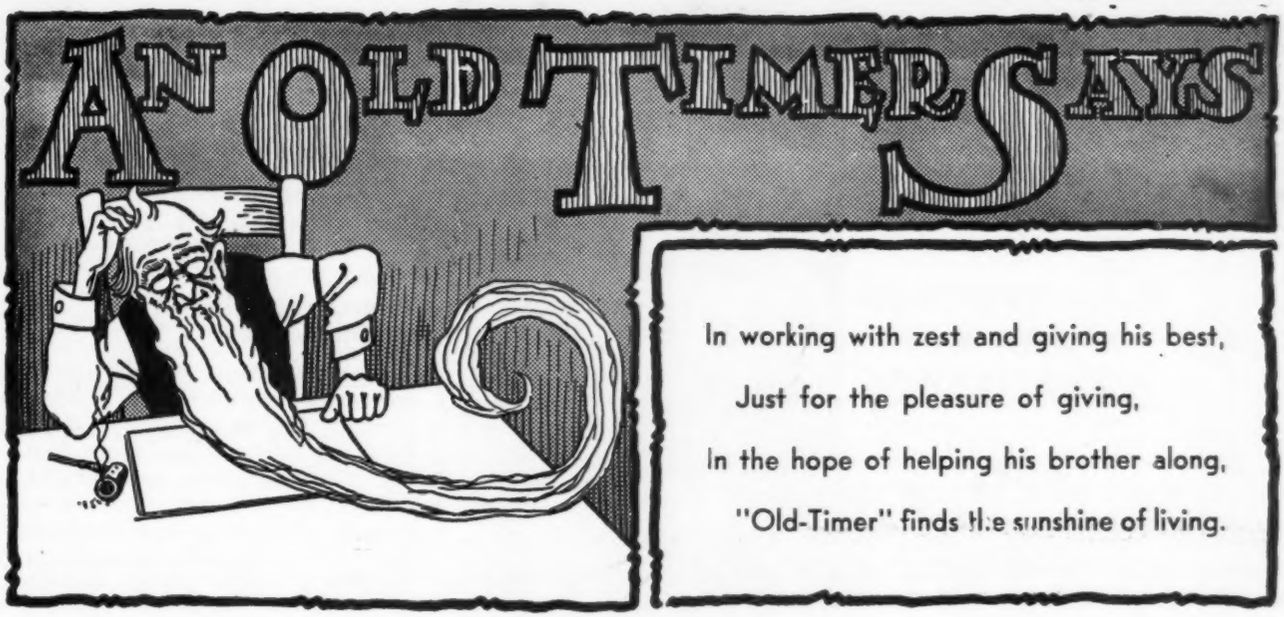

AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

Random Thoughts

You're Not Too Old to Learn

YOU OLDER overseers, superintendents, and managers who read OLD-TIMER'S suggestions for you to set aside one or two nights per week for the study of psychology, human relations, and other constructive reading, and say, "Oh! Heck, I am too old to start studying now."—how wrong you are.

Just listen to this: Albert Edward Wiggam, D. Sc., says, "A child is a very slow learner and rememberer, compared with an adult of 40, 50, or older."

Psychologist E. L. Thorndike has found that people at least up to 45 and probably older learn and remember just about as well as persons of 19 or 20 years of age.

Well, there you are, fellows, statements by two prominent men who give you, not what they think, but what they *know* from actual tests. Looks like the reason you will not take OLD-TIMER'S advice is that you are just too darn lazy or else you don't give a darn whether you make any more money or not.

OLD MAN *Opportunity* comes to every man in many ways. The smart guy is the fellow who knows when and what that *opportunity* is and grabs it—hook, line, and sinker.

FIND OUT the weakest point of your job. What is giving the most trouble. Is it quality, low production, excessive supply cost, high manufacturing cost, or what?

Analyze it from every angle to decide upon the most practical approach, then center your efforts on that one problem—work like heck toward it. Believe in your idea and don't give up until you have it conquered. Now take up the next weakest point.

Can You Stand Improvement?

MR. OVERSEER, superintendent or manager would consider Joe Lewis very foolish if he did not prepare himself for a coming contest for his crown. They would consider a baseball club very foolish if it did not take early spring training to prepare the players for the summer contests.

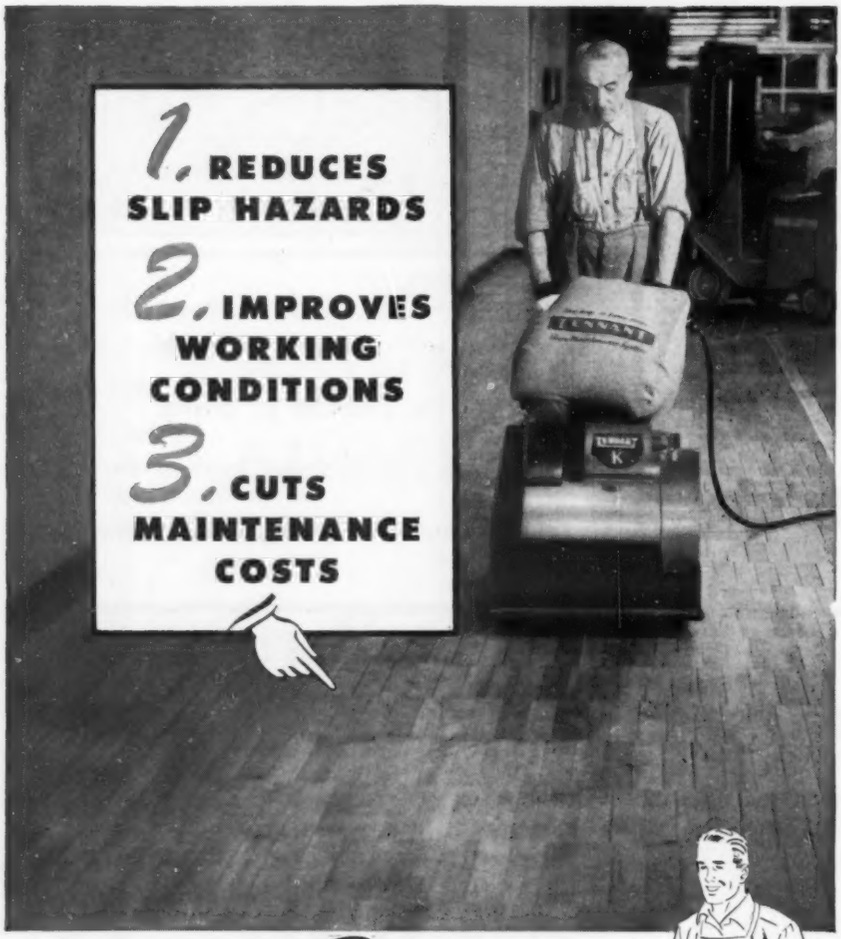
How about a doctor who does not study the medical journals, go to conferences, and put in hours of study to keep abreast of progressing medical science? You would not want that doctor to work on you, would you?

Well, now let's see what the average overseer, superintendent or manager of a textile mill is doing. Oh! he goes to the mill every day and usually goes through a more or less regular routine, works 8 hours (sometimes more hours for superintendents or managers), goes home, reads the daily paper, maybe takes in a movie, and goes to bed. Tomorrow, same old thing. Not a single hour devoted to improving himself for his job.

More and Better Ideas!

TO PROGRESS beyond the average you must have more and better ideas than the average man. *Imagination is the mother of ideas.* You are simply following a law of nature when you realize that to "beat the other fellow" you must have more practical ideas than he does.

Your imagination concerning any one subject can be improved by studying all available information concerning that subject. A book entitled "You-Triumphant," by Eugene Benge, is good reading for any man who wishes to progress beyond being the average overseer, superintendent, or manager. Your public library probably has it or can tell you how to order it.



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RESTORES "life" to your floors. Gets rid of dark, rough, oil-soaked top fibers; leaves floor bright, smooth.

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Write Today! Ask for a Tennant representative to inspect your floors. He'll give you FACTS about modern, mechanized floor maintenance . . . and what it offers your mill.

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Tennant 201 Oil Cover Paint masks dark oily areas like magic . . . you just paint it on. Flows easily; dries fast. Ideal for use under looms, for painting machines, etc. Special lacquer base; easy to keep clean. All standard colors.

AN
EXECUTIVE VIEWS
THE NEWS IN TEXTILES

This department is prepared by a man who is closely identified with the textile industry.

Communicating With Employees

One of the most difficult and yet one of the most important problems faced by this or any other industry today is that of establishing a definite line of communication between management and employee. How are you going to get across to your employees the fact that the cost of manufacturing yarn and cloth has sky-rocketed to undreamed of heights? How are you going to convince them that modernization and increased productivity are just about the only ways to combat that spiral?

There are hundreds of things which you must get across to your employees, and usually your success or failure in this endeavor has a tremendous bearing upon the success or failure of your employee relations program, your public relations program, and your balance sheet.

Textile mills are today using a number of methods to answer this need. Through bulletin boards, plant newspapers, radio programs, talks by management, and by word of mouth from supervisory personnel, many mills are doing an outstanding job in this respect.

Recently Startex Mills, Tucapau, S. C., got out a booklet which seems to us to do a good job on one phase of this question. Entitled "We're Working for Startex," the booklet is apparently intended primarily for distribution to new operatives, but it is also designed in such manner that it is appropriate for employees who have been with the mill for some years.

Attractively illustrated and written in the layman's language, it shows pictures of the mill interior and of social events, describes services available such as the medical clinic, canteen, and athletic facilities. In a section called "What Happens to a Bale of Cotton?" the manufacturing processes are traced in simple language so that employees in each department may know what happens in other departments.

"We're Working for Startex" also builds up the theme that a job in the textile industry is something of which to be proud. That is a thought

which should have been more fully developed many years ago. The booklet carries this statement in boldface type: "Important business? Important people? Yes Sir. Be proud you're a cotton textile employee."

The Startex pamphlet is a good example of one step that an alert management can take in the matter of communicating with employees. It was not intended to do the complete job, because communicating is a continuing process; but it does fill a need which exists in every plant.

A Look at the Record

A lot of loose talk about the cost of living is going the rounds these days. Some of it is based, or was originally based, on fairly accurate figures which have been distorted in transmission. Much of the talk, however, seems to be based in the main on legend and folklore, rather than upon statistics.

The great hue and cry is mostly to the effect that the cost of living has climbed like an atom-powered rocket ship, while wages have shambled along in the horse-and-buggy era. Nobody who buys meat, eggs, milk, and the other items which sustain life can question the fact that the cost of living has risen. All of us are agreed on that.

But in like manner, nobody who works with his hands can deny that wages have also risen. We need only look at the 10-cents-an-hour figures of less than 50 years ago to realize what tremendous progress has been made, particularly in textiles.

The question, then, is one of relativity, and it does not take an Einstein to compare the *rate of increase* in the cost of living with the *rate of increase* in wages.

Germany marched into the Low Countries in September, 1939, thus igniting World War II. It cannot be contended that 1939 was a normal year, because nobody knows what a "normal" year is; but it was in the latter part of that year that war began for Europe, and thus 1939 is about as valid a year as any other upon which to base comparisons.

What's happened to wages in southern cotton mills since then? Using U. S. Department of Labor figures, we find that in January, 1939, the average cotton mill employee was earning 36.6 cents an hour. By March, 1948, this had climbed to 105.3 cents an hour, representing an increase of 188 per cent. Again utilizing Department of Labor figures, we find that the cost of living index climbed from 99.4 in 1939 to 166.9 in March, 1948, representing an increase of 68 per cent. Those figures are not based on legend and folklore. They come from the U. S. Department of Labor, which, to express it mildly, has never been prejudiced in favor of management. To state the conclusion again, the figures show that average hourly earnings in cotton mills in the South have increased 188 per cent since

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UNIFORM DEPENDABLE

IRA L. GRIFFIN, P. O. BOX 1576, CHARLOTTE, N. C.

1429 BRYANT STREET — PHONE 4-8306

WHITTIER & DUPILLE

INDUSTRIAL ENGINEERS

WAGE AND JOB EVALUATIONS — APPLICATION OF IMPROVED METHODS — DEVELOPMENT OF TRAINING PROGRAMS — INSTALLATION AND MODERNIZATION OF WAGE INCENTIVES — PRODUCTION COST CONTROLS — TECHNICAL ADVICE IN LABOR RELATIONS.

CANDLER BUILDING ATLANTA, GEORGIA

Condor TEXTYL LINE RUBBER PRODUCTS

FOR THE TEXTILE INDUSTRY

Transmission Belts • V-Belts • Cone Belts • Rubber Covered Rolls
Rubber-Lined Tanks

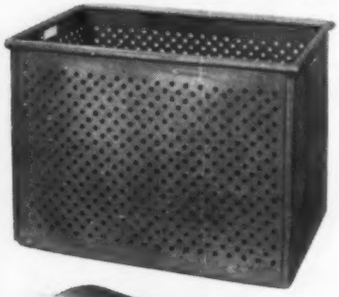
Sand Roll Covering
Air, Water and Steam Hose
Acid Hose
Fire Hose
Vacuum Hose
Loom Strapping
Oilless Bearing Material

RAYBESTOS-MANHATTAN INC.

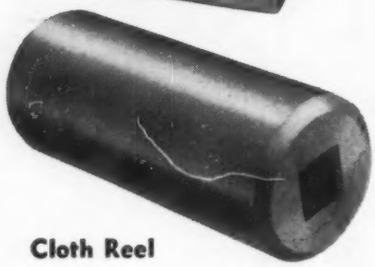
MANHATTAN RUBBER DIVISION

EXECUTIVE OFFICES AND FACTORIES PASSAIC, NEW JERSEY

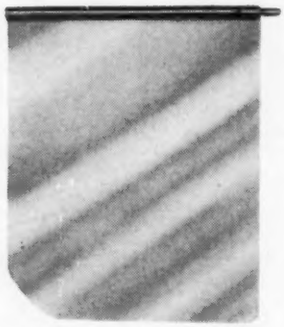
CUT COSTS WITH *Stainless Steel*



Doffing Boxes and Dye Beck Reels



Cloth Reel



Separators

TEXTILE, dyeing and finishing plants can cut deeply into operational costs by replacing ordinary metal parts with stainless steel. Stainless steel is particularly effective in preventing metallic contamination or to keep colors running true in successive runs. Reduced repairs, expense of frequent changes and adjustments, resistance to corrosion . . . soon repays initial costs.

Whether your reqirements be large tanks or small separators, stainless or carbon steel . . . *Truitt will fabricate it for you.* Refer your specific needs to us . . . our engineering services are available to you without obligation.

TRUITT
MANUFACTURING COMPANY
• GREENSBORO, NORTH CAROLINA •

Fabricators of Solid Stainless Steel and Stainless-Clad Tanks • Dyeing Vats • Washing Tanks • Steam Drums • Storage Tanks for Acids and Alkalis • Mechanical Agitators • Separators • Stainless Steel Trucks • And Many Other Stainless Steel Products.

1939, while the cost of living has increased 68 per cent.

The Way Out

Sometimes when the legend-and-folklore boys are confronted with such figures they claim that "favorable" periods have been selected which will give the picture desired. They claim that if only 1942 had been used, or 1944, or some other year, that the story would have been quite different. That is, of course, only an attempt to dodge the inevitable conclusion which must be arrived at from an examination of the statistics.

But just to do the job thoroughly, let's look at a few other figures. Let's not only take 1939, but also *each* year since then and compare wages and the cost of living then and now. We come out with some interesting percentages.

Using Department of Labor figures as a basis for computations, and again dealing with average hourly earnings in southern cotton mills, the figures go this way:

	Cost of Living Up—	Wages Up—
Aug. '39-Mch. '48	68%	188%
Aug. '40-Mch. '48	67	169
Jan. '41-Mch. '48	66	161
Jan. '42-Mch. '48	49	118
Jan. '43-Mch. '48	38	88
Jan. '44-Mch. '48	34	84
Jan. '45-Mch. '48	31	66
Jan. '46-Mch. '48	29	52
Jan. '47-Mch. '48	9	19

As you can see from these figures, it's not a question of which period you select. The fact remains that average hourly earnings of cotton goods employees have so far out-distanced the cost of living that not much room is left for argument.

You may already be convinced of these facts yourself, but it might be a good idea to have the figures available just in case you need them.

In the opinion of this writer, the only way wages can economically be increased is by an increase in productivity. If this industry is to compete with the textile industries of foreign nations, and with the inroads now being made by paper and other substitutes, we are going to have to increase our productivity per man hour.

PERSONAL NOTES

ABOUT MEN YOU KNOW

W. H. WOLFE has resigned as superintendent of carding at Springs Cotton Mills, Lancaster, S. C., and has joined Martha Mills, textile division of The B. F. Goodrich Co., and will be occupied in a similar capacity.

CHARLES E. HATHAWAY, JR., formerly associated with Mt. Hope Finishing Co., will represent Renfrew Bleachery, Travelers Rest, S. C., succeeding LEROY B. PITT, resigned.

The Southern New England Textile Club has reelected as president F. LINCOLN DUNLAP, general manager of the Fall River, Mass., plant of Pepperell Mfg. Co.

FRENCH CAMPBELL, former president of Campbell Fabrics Corp., Charlotte, N. C., has joined Bloom Mills, Inc., Gastonia, N. C., and Lancaster, Pa., as general manager.

AUSTIN J. BAILEY has tendered his resignation as vice-president of Brookfield (Mass.) Mills, Inc.

JESSE DE LA RAMA has joined the product engineering laboratories of the research and development division of Alexander Smith & Sons Carpet Co., Yonkers, N. Y., as a quality control engineer.

WILLIAM C. SUMMERSBY, former vice-president and general manager of the Ware Shoals division of Riegel Textile Corp., has become assistant to the president, Col. Elliott Springs, of Springs Cotton Mills, Lancaster, S. C.

WALTER REGNERY, former vice-president and general manager, has been elevated to the presidency of Joanna Cotton Mills Co., Goldville, S. C.

ABIJAH U. FOX, formerly associated with the Mathieson Chemical Corp., has been elected treasurer of the American Thread Co., New York.

ARTHUR J. THORNTON, former women's hosiery buyer for Loeser's, Brooklyn, N. Y., has become sales director of Nebel Knitting Co., Charlotte, N. C., with offices in New York.

Harden Mfg. Co., Gastonia, N. C., has announced the following transfers

The forty representatives from various mills pictured below attended the Personnel Testing Institute held at the Georgia Institute of Technology, Atlanta, Ga., June 9-11, which was sponsored by the Cotton Manufacturers Association of Georgia.

For Over a Quarter of a Century
STODGHILL and COMPANY
ATLANTA GEORGIA
has supplied the South with
"The Size That Satisfies"

For 50 years TEXTILE INDUSTRIES has served the textile manufacturing industry faithfully. It is read by more mill men in the United States than any other textile publication.

It heads the list of many advertisers wanting to cultivate their share of this attractive market because T.I. provides maximum coverage at minimum costs.

TEXTILE INDUSTRIES

GRANT BLDG. ATLANTA 3, GA.

within the organization: J. T. MARSHALL was promoted from assistant superintendent to superintendent of the Peck Mfg. Co., Warrenton, N. C., replacing ROY DIXON. Mr. Dixon has been transferred to Fayetteville, N. C., as superintendent of the Tolar-Hart & Holt Mills, replacing J. T. BYRUM. Mr. Byrum is now superintendent at Harden Mfg. Co. No. 2, Rock Hill, S. C. He succeeds GEORGE RUTLEDGE, now with Harden Mfg. Co. No. 1 at Dallas, N. C.

E. B. MATHEWSON has resigned as executive vice-president and director of North Star Woolen Mill Co.

DR. FRANKLIN W. HOBBS, chairman of the board of directors of William Whitman Co. and chairman of the Textile Foundation's board of directors, has been awarded the honorary degree of Doctor of Textile Science by North Carolina State College, Raleigh, N. C.

HARRY CULCLASURE, former overseer of carding at the Pilot Mills, Raleigh, N. C., is now located at Huntsville (Ala.) Mfg. Co., in a similar capacity.

LEONARD F. KELLEY has become resident manager of the Kennebec Mills of American Woolen Co. at Fairfield, Maine, succeeding JAMES W. STANLEY, who is now superintendent of Schuster Woolen Mills, Inc., East Douglas, Mass.

J. LUTHER ADAMS, former overseer of finishing, has been promoted to night superintendent of all operations at Mount Hope Finishing Co., North Dighton, Mass.

THOMAS E. GOULET and ALBERT BRISSON are superintendent of dyeing and assistant superintendent, respectively, of Maplewood Yarn Mills, Inc., Fall River, Mass. Mr. Goulet was formerly superintendent of the Woodlawn Finishing Co., Pawtucket, R. I., and Mr. Brisson was overseer at Cooper-Kenworthy Co., Providence, R. I.

ROBERT WILKINSON, formerly with the Gosnold Mills, New Bedford, Mass., is now assistant to the superintendent at Blackstone Textiles, Inc., Pawtucket, R. I.

PAUL TURCOTTE, formerly with the Old Colony Mfg. Co., Taunton, Mass., has joined Am-Tex Mills, Pawtucket, R. I., as overseer.

FRANK LEANDRO, formerly with the American Woolen Mills in Norwich, Conn., has become boss carder

at Lebannon Knitting Mills, Pawtucket, R. I.

MAURICE E. CLARK, former assistant dyer at Franklin Process Co., Providence, R. I., is now overseer at Troy (N. H.) Blanket Mills.

LYMAN E. MAIN, until recently overseer of weaving at the Berkley plant of the Lonsdale Co., has been promoted to superintendent of the plant succeeding RUDOLPH LUX, who has advanced to general superintendent in charge of both the Berkley and the Blackstone Mills.

HENRY CAHILL, former overseer of the Greenhalgh Mills, Pawtucket, R. I., has joined the Raybrook Mills, Central Falls, R. I., in an executive capacity.

ALBERT E. DECKER, formerly with John T. Slack Corp., Springfield, Vt., has started his own wool and rayon shoddy business in Charlestown, N. H.

HAROLD V. KING, who has been general manager of what is now the Hill division of the Bates Manufacturing Co., Lewiston, Me., will continue in that position and will in addition take over the plant managership of the York division, Saco, Me., succeeding ARTHUR E. TOUSIGNANT, who resigned recently.

GEORGE H. CLOUGH, who has been president and treasurer of Sutton's Mill, North Andover, Mass., for many years, has relinquished the presidency to ROGER MERRIMAN, but will continue on as treasurer.

Obituaries

WILLIAM SAMUEL CASKIE, vice-president and secretary of Southern Textiles, Inc., Lynchburg, Va., died at the Virginia Baptist Hospital recently.

HARRY L. SPECK, associated with the Sayles (R. I.) Finishing Plant, Inc., passed away at his home in Larchmont, N. Y., at the age of 64.

RALPH E.. DORLAND, president of the Synthetic Organic Chemical Manufacturers Association, died suddenly at the age of 69.

GEORGE B. HARRIES, secretary and assistant treasurer of Bally Ribbon Mills, Inc., was killed recently in an airplane crash.

JOHN F. REARDON, 52, superintendent of Grosvenordale (Conn.) Mills, Inc., passed away at his home there recently.

JOSEPH GOLDBERG, 49, former owner of Nina Dyeing & Finishing Co., Easton, Pa., died recently following an illness of one year.

SAMUEL R. HAINES, president of Roxbury Carpet Co., Saxonville, Mass., passed away recently.

GEORGE W. SUMMERSBY, 57-year-old president of Bradford (R. I.) Dyeing Association, died at his home in Watch Hill, Westerly, R. I., after a long illness.

WILLIAM WARREN CREWS, vice-president of Comer-Avondale Mills, Sylacauga, Ala., passed away in Chattanooga, Tenn., recently.

JOHN A. SAND, SR., who was the oldest living member of the Knitted Outerwear Manufacturers Association, Western District, passed away at his home in Miami, Fla., recently at the age of 86.

W. IRVING BULLARD, 67, chairman of the board of Bullard Clark Co., Charlotte, N. C., died in a Charlotte hospital after an illness of two weeks.

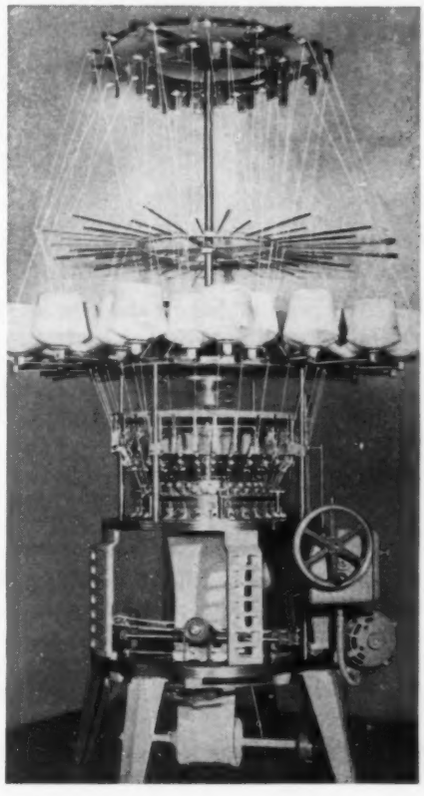
EDWARD HINCHLIFF, of the Burson Knitting Co., Rockford, Ill., was one of 43 persons killed in an airplane crash near Mt. Carmel, Pa., recently.

WILLIAM H. OWEN, 71, retired after 49 years of service with Fieldcrest Mills, Inc., died of a heart attack at his home in Leaksville, N. C., recently.

PROFITS COME FASTER WITH THE NEW...

20" DIAMETER 30 FEED EDMOS

Type EEM Super Multi Feed Plain Rib Body Machine



FOR YOUR HIGH SPEED KNITTING NEEDS—The new Edmos type EEM, with 1½ feeds per diameter inch, has proven it can produce up to four times more work than older type machines—all within the same floor space! Especially designed for the manufacture of fabrics in the Swiss rib family; ideal for the production of quality fabric for "T" shirts, polo shirts and basque shirts.

See a demonstration at the Edmos plant.

EDMOS PRODS. CORP., 13 Christopher Ave., Bklyn., N. Y.

A NEW RESEARCH MODEL

Launder-Ometer

—accommodates larger samples for more accurate shrinkage testing.

Two new models have been added to the line of Atlas Launder-Ometers that materially expand the range of tests for the determination of resistance to mechanical and washing action, shrinkage and staining, and for proving the color fastness of dyestuffs. All factors can be controlled carefully and reproduced identically at any time.

Both new units incorporate improvements in design and function, and are adaptable to larger size containers for greater general utility. Model L1Q is constructed with a capacity of 20 pint or 20 quart jars; Model L2Q with capacity for 20 pint, 20 quart, or 6 half-gallon containers. The half-gallon size jars make possible the use of larger-sized samples for more accurate testing of shrinkage resistance. Both machines can be supplied with vari-speed drive units for operation at selected speeds between 10 and 50 R.P.M.

Both Models L1Q and L2Q are equipped with the Atlas pre-heating loading table which increases the accuracy of tests by starting all samples at the same temperature.

Atlas-Ometers—Launder-Ometers, Weather-Ometers, Fade-Ometers, the standard accelerated testing machines accepted throughout the world for over a quarter of a century.

ATLAS ELECTRIC DEVICES CO.

361 W. SUPERIOR ST., CHICAGO 10, ILLINOIS

WEATHER-OMETERS • FADE-OMETERS • LAUNDER-OMETERS

SUPPLIERS' NEWS

WHAT THEY ARE DOING

The following elections have been announced by the Cameron Machine Co., Brooklyn, N. Y.: J. Scheuermann is vice-president, vice-president of Cameron Machine Co. of Canada Limited, and sales manager of the company; Ross Mekeel, purchasing agent, has also taken over the duties as secretary; Tom Carter, formerly of the new design department, is now manager of the engineering department; R. W. Cummings, former secretary of the company, will act as sales representative

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Paul D. Doolen, former general attorney for the A. E. Staley Mfg. Co., Decatur, Ill., has become manager of industrial sales, and is pictured at the top left. R. L. Nagle, top right, for the last six years serving as advertising manager, has been appointed to head the sale and distribution of monosodium glutamate, soy flour and lecithin, for Staley. Bottom left is Henry Volle who has been promoted from assistant advertising manager to advertising manager. Ivan F. Wieland, bottom right, will take over duties in addition to those of assistant industrial sales manager, a position which he has held for ten years.

1. FOR THE MONEY Whether you are a producer or user of Rayco Cotton waste and linters or synthetic waste, you'll find our prices are always fair.

2. FOR THE SHOW Feel free to call on us for full information and quotations at any time.

3. TO GET READY Our fiber experts and four licensed graders are always at your disposal.

4. TO GO There is a Railway Supply plant or Sales and Buying office near you for your convenience. Get in touch with us before you buy or sell!

The RAILWAY SUPPLY & MFG. CO. and Affiliates

Specialists in Grading, Marketing and Processing Cotton and Synthetic Fibers

General Offices: CINCINNATI, OHIO

Plants and Sales Offices:

Cincinnati, Ohio • Franklin, Ohio • Atlanta, Ga. • Charlotte, N. C. • Covington, Tenn. • Greensboro, N. C. • Memphis, Tenn. • New York, N. Y. • Chicago, Ill. • Detroit, Mich. • Dallas, Texas

RAYCO

***for* COTTON AND SYNTHETIC FIBERS**

in the southern states, and E. J. Ward has taken over as service manager.

Corn Products Sales Co., New York, has appointed W. H. Adcock, former bulk salesman, as manager at Atlanta, Ga. He succeeds C. J. Worrall, now supervising the Ohio territory.

Mr. Adcock

William DeMin, president of Manufacturers Textile Export Co., has been elected president of the Textile Export Association of the United States, succeeding N. S. W. Vanderhoef, president, Turner Halsey Export Corp. Mr. Vanderhoef has been named chairman of the board. John H. Judge, president of G. A. Stafford & Co., and William C. Planz, vice-president of Neuss Hesslein & Co., were named vice-presidents. John W. Murray was re-elected secretary-treasurer.

Stanley G. Haskins has been appointed assistant manager of the New England territory for American Viscose Corp., and is to remain at the Providence, R. I., headquarters.

Mr. Powell

Bailey Meter Co., Cleveland, Ohio, has opened a new branch office in Charlotte, N. C., and has appointed J. R. Powell as branch manager.

The Foster Machine Co., Westfield, Mass., has awarded 62 members of the organization who have served for periods ranging from 25 years to

SCRUBS and SQUEEGEES FLOORS

LAWLOR 20-D

DOES BOTH JOBS

Only one operator is required to run this remarkable two-in-one machine. Clean water is fed from one tank upon the soaped floor, the 19" diameter revolving brush scrubs it quickly and thoroughly. Then a rubber squeegee mops up the dirty water which is vacuum pumped into a second tank.

JUST THE THING FOR LARGE AREAS

The Lawlor 20-D is only 22" wide and can be used in congested places around machines, counters and desks. Available for either AC or DC current.

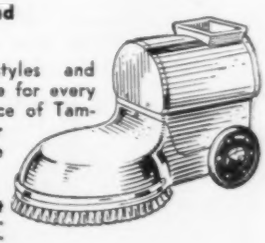
MOP WRINGERS

All steel with perforated rolls. Easy foot-lever operation. Made for one or two pails.

MOPPING TANKS

Heavy galvanized steel with welded seams. Two compartments, each with shut-off. Foot pressure wringers. 30 or 60-gallon capacity.

SCRUBBERS and POLISHERS



12 different styles and sizes, a right size for every need. Your choice of Tampico, Palmetto or Steel Wire brushes.

Lawlor Equipment is sold and serviced by local Janitor Supply Houses.

Write for Catalog giving description on the complete line

S. C. LAWLOR CO.

Makers of Quality Equipment for 50 Years

121 N. Aberdeen St., Chicago 7, Ill.

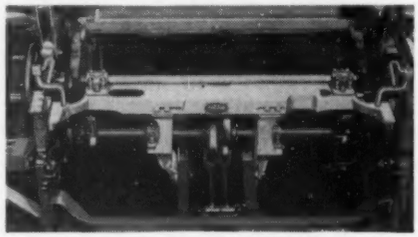
HUNT ★

EQUIPMENT FOR MODERN WEAVE ROOMS

The craftsmen and engineers at Hunt Machine Works strive constantly for improvement in design and performance of textile machinery and equipment. The weave room machinery shown here represents the latest in tried and proved equipment.

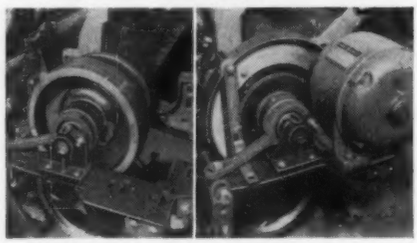
HUNT SPREADERS

When added to looms practically any make or size, patented Hunt Spreaders make possible greater stability, fabric of better quality and increases up to 36 picks per minute in output.



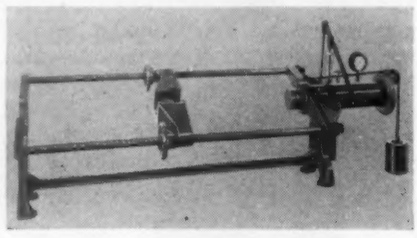
FLYWHEEL AND MOTOR DRIVES

Hunt belt-driven flywheel drives are particularly efficient when installed with Hunt Spreaders on older model looms. Hunt Motor Drive features latest model loom motors, directly attached to loom side. Integrates motor with loom, eliminates crankshaft strain. Features ball thrust bearings.



HYDRAULIC PRESSES

Model Y-20 has 20-ton capacity and will swing a 24-inch pulley. Model Y-30 has 30-ton capacity and will swing 32-inch pulley. Furnished either for hand operation or combination of motor drive and hand operation.



Hunt Rebuilt Looms will be prominently featured at the Southern Textile Exposition, Greenville, S. C., October 4th-9th, 1948. We will also show the above illustrated machinery and many other Hunt products. Look for our three booths—Nos. 128, 129, and 130.

HUNT MACHINE WORKS
INCORPORATED
GREENVILLE, SOUTH CAROLINA

49 years with a gold service pin. On each pin there is a precious stone designating the number of years served.

A sixth region has been organized for the Allis-Chalmers general machinery division's field organization, known as the Mid-Atlantic region with headquarters in Philadelphia. The new area will be under the direction of William Arthur, former Philadelphia district office manager. The York and Charleston offices, former branch offices, become district offices under the regional plan.

Mr. Flett

Lawrence H. Flett, director of the new products division of the National Aniline Division, Allied Chemical & Dye Corp., has been elected president of the American Institute of Chemists for a two-year term in the national election.

M. A. Sievert has been appointed as an engineer in the technical service department of the Reynolds Metals Co., Louisville, Ky.

Food Machinery Corp. and Westvaco Chemical Corp. have agreed to a merger and will be named hence forth Food Machinery and Chemical Corp.

Walter E. Scholar, former assistant manager, has become manager of the fabric development department of the American Viscose Corp. He succeeds Pierre Sillan who has resigned. Robert D. Handley has been appointed assistant manager of the public relations department of Avisco.

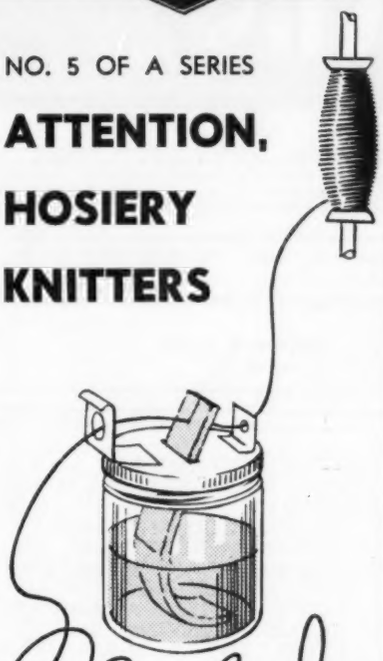
Robert A. Morris has been promoted from director of advertising-publicity to assistant to the president of Acme Steel Co., Chicago, Ill. F. R. Grove, Jr., former assistant advertising manager, has become advertising manager.

The Felters Co. has announced the removal of their New York sales office to 340 West 4th Street, New York 14, N. Y., and also the opening of an eastern cutting plant at the same address.

QUALITY RICHMOND PRODUCTS

NO. 5 OF A SERIES

ATTENTION, HOSIERY KNITTERS



Nyloil 360

A SPECIAL OIL, anti-static in nature, designed to give greater stiffness to the stocking, and to prevent snags, pull threads and snarling.

NYLOIL No. 360 is used in knitting 10 and 15 denier monofilament unsized nylon yarn.

NYLOIL No. 360 will scour out in any regular scour bath.

DIRECTIONS

Use straight—do not mix with water.

Pour the oil in a nylon oil jar and run the yarn through the slit in the saturated wick extending through the lid of the jar.

WE CAN FURNISH THE NYLON OIL JARS IF YOU NEED THEM

Samples and More Detailed Information Upon Request.

Southern Office
617 Johnston Bldg., Charlotte, N. C.
Charlotte 2-1428

RICHMOND OIL, SOAP & CHEMICAL CO., Inc.
1041-43 FRANKFORD AVE.
PHILADELPHIA 25, PA.

A new three-story Du Pont laboratory devoted to research and development work in the field of coated fabrics and allied products has been opened in Newburgh, N. Y. The laboratory is under the direction of R. E. Thomas and is part of the chemical division of Du Pont's fabrics and finishes department.

George R. Coleman, president of G. R. Coleman & Co., Inc., New York, N. Y., exporters-importers, has returned from a three-month business trip to the Far East where he visited the branch office of the firm in Shanghai as well as associated firms in Hongkong, Manila and Japan.

The Industrial Truck Division of the Clark Equipment Co., has prepared a series of films illustrating some new economical applications of modern materials handling machines.

C. Scott Althouse, industrialist and inventor, and president of the Althouse Chemical Co., Reading, Pa., has been awarded a Doctor of Science degree by Dickinson College, Carlisle, Pa.

Dr. Althouse

Karl H. Inderfurth has been appointed assistant to W. S. Warren, sales manager of Universal Winding Co., Providence, R. I. Mr. Inderfurth will be in charge of the promotional, advertising and sales research departments of both Universal and its Atwood Division in Stonington, Conn. Waters Kellogg has resigned as advertising manager of Universal, in Boston, Mass., and has joined the Reece Corporation.

Perkins Soap Co., Springfield, Mass., has selected Charles Mathieu, Jr., former director of information for the International Wool Secretariat, as special sales representative in New York City.

Fibre Industries, Inc., New York, has announced the election of Benjamin B. Tunick as president. The company has developed the "Fibrator," a fiber decorticating machine.

An Entirely NEW SADDLE

That *SAVES MONEY* Here . . .

And *MAKES MONEY* Here . . .

BY FRICTIONLESS OIL-FREE DRAFTING

The new Dixon saddle* for long draft spinning *saves* money by reducing operating costs, and makes money by increasing yarn quality and production. It's an entirely new saddle featuring replaceable SLIXONICE* bearings, and the first radical improvement in saddle design in many years.

Here's how the new Dixon SLIXONICE saddle cuts costs and increases quality and production:

ELIMINATES OILING AND ROLL SCORING
REDUCES ROLL PICKING, LINT ACCUMULATION AND AVERAGE POWER CONSUMPTION
PERMITS QUICK REPLACEMENT OF WEARING SURFACES AND VARYING PRESSURES OVER A WIDE RANGE OF ROLL SPACING

Send for the illustrated booklet shown here and read more detailed information on the new Dixon SLIXONICE saddle. It can save you the money you are spending now, and make you the money you are losing now.

*Trade Mark; Pat. Applied For

DIXON
LUBRICATING SADDLE CO
Established 1876
BRISTOL — RHODE ISLAND
Sole Manufacturers of
SLIXONICE
Saddles and Cap Bar Nebs

CLASSIFIED ADS

BUSINESS—EMPLOYMENT—EQUIPMENT—PROFESSIONAL CARDS—OPPORTUNITIES

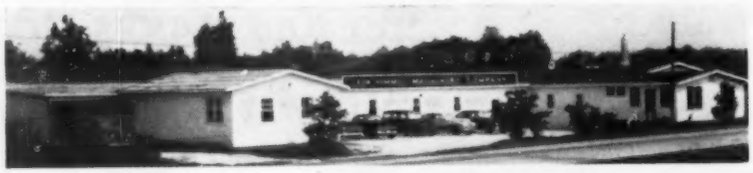
General manager Southern full fashioned hosiery mill; plant superintendent rayon woven fabrics for South; foreman rayon warp preparation for So. America; overseer cotton carding and spinning, Southern mill; cotton and rayon loom fixers, also boss dyers for So. America; roller machine printer for South America; and many others.

We invite correspondence (confidential) with mill men seeking new positions and employers seeking new personnel.

CHARLES P. RAYMOND SERVICE, INC.

294 WASHINGTON STREET Phone: Liberty 2-6547—2-6548 BOSTON 8, MASS.

Over 50 years of confidential employment service for men seeking positions and employers seeking men.



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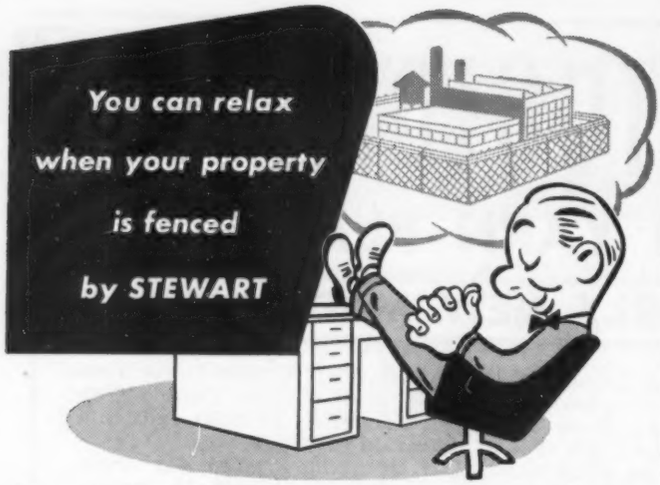

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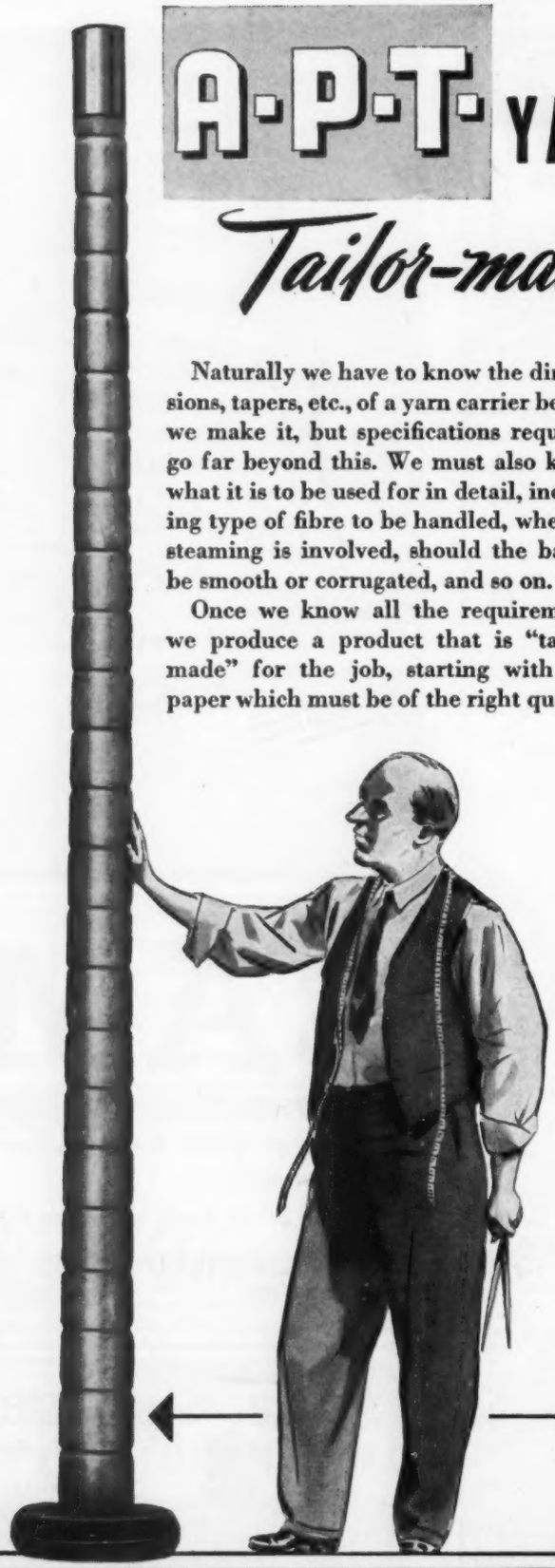

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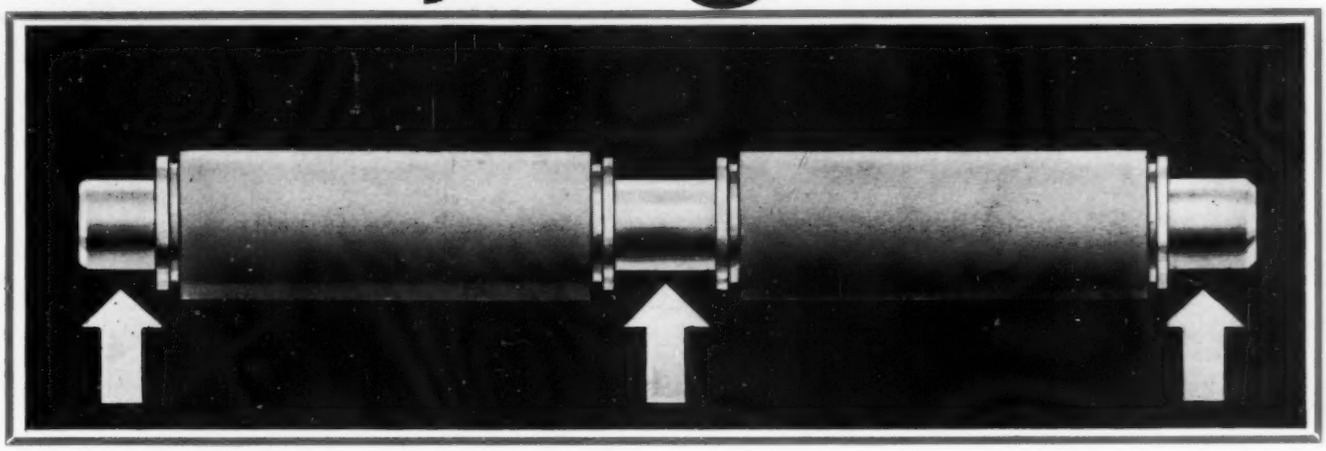

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VEEDER-ROOT COUNTERS
for Every Textile Machine and Process

VEEDER-ROOT Clutch Speed Counter

It also pays to keep one of these No. 21 Speed Counters with you when you go out in the mill, because:

1. You can easily make a spot-check on the speeds of spinning frame shafts and front rolls.
2. You can easily make a spot-check on the speeds of loom crankshafts.
3. You can readily check the speed of any motor or engine shaft.

Veeder-Root Clutch Speed Counter comes with steel point, plus attachable rubber point and suction cup. Press point or cup against revolving shaft... time one minute on your own watch. Remove counter from shaft and the direct counter reading is correct RPM.

VEEDER-ROOT INC.

HARTFORD 2, CONNECTICUT · GREENVILLE, SO. CAROLINA

Offices in: Boston, Chicago, Cincinnati, Cleveland, Detroit, Los Angeles, New York, Philadelphia, Pittsburgh, St. Louis, San Francisco, Montreal, Buenos Aires, Montevideo, Mexico City. *In England:* Veeder-Root Ltd., Dickinson Works, 20 Purley Way, Croydon, Surrey. *In Canada:* Veeder-Root of Canada, Ltd., Montreal.

MAKERS OF 2-3 CONVERTIBLE PICK, HANK, YARDAGE, AND KNITTING COUNTERS